their significant impact on nearshore finfish. These fisheries and other activities that are dependent on nearshore finfish in various ways are described below.

The nearshore finfish fishery encompasses all activities in the marine environment that utilize the 19 NFMP species. Extractive users remove fish, and include recreational anglers, spear fishermen, commercial fishermen, and scientific collectors. Non-extractive users interact with the NFMP species without harvesting them, and include divers observing or photographing nearshore finfish.

Extractive Users

Recreational anglers use hook-and-line to fish from man-made structures, beaches and banks, private and rental vessels launched from ramps, and party and charter vessels, as well as private vessels stored in boat slips or anchored in harbors.

Recreational divers generally use spear-guns to take fish from subtidal areas near man-made structures or near natural shores, or use private/rental vessels and party/charter vessels to gain access to more remote diving locations.

Commercial fishermen use a variety of gear to take the 19 species. The primary gears used in the nearshore area are **traps** and **hook-and-line**, including **rod-and-reel**, **vertical hook-and-line**, stick gear, and set longline. In areas outside state waters, commercial fishermen may catch nearshore species with trawls, gill nets, and trammel nets. Commercial fishermen operate from a variety of vessel types, including kayaks, skiffs, small boats, and trawlers.

Depending upon the specific research or education purpose, scientific collectors use types of gear used by commercial or recreational fishermen to take nearshore fish.

traps - generally, a wire basket or cage used for trapping fish.

hook-and-line - any type of fishing gear involving a fishing line with attached hooks (such as longline, rod-and-reel, troll and stick gear, among others).

vertical hook-and-line - a fishing line which is anchored to the bottom and attached at the surface to a vessel or a buoy so as to fish vertically.

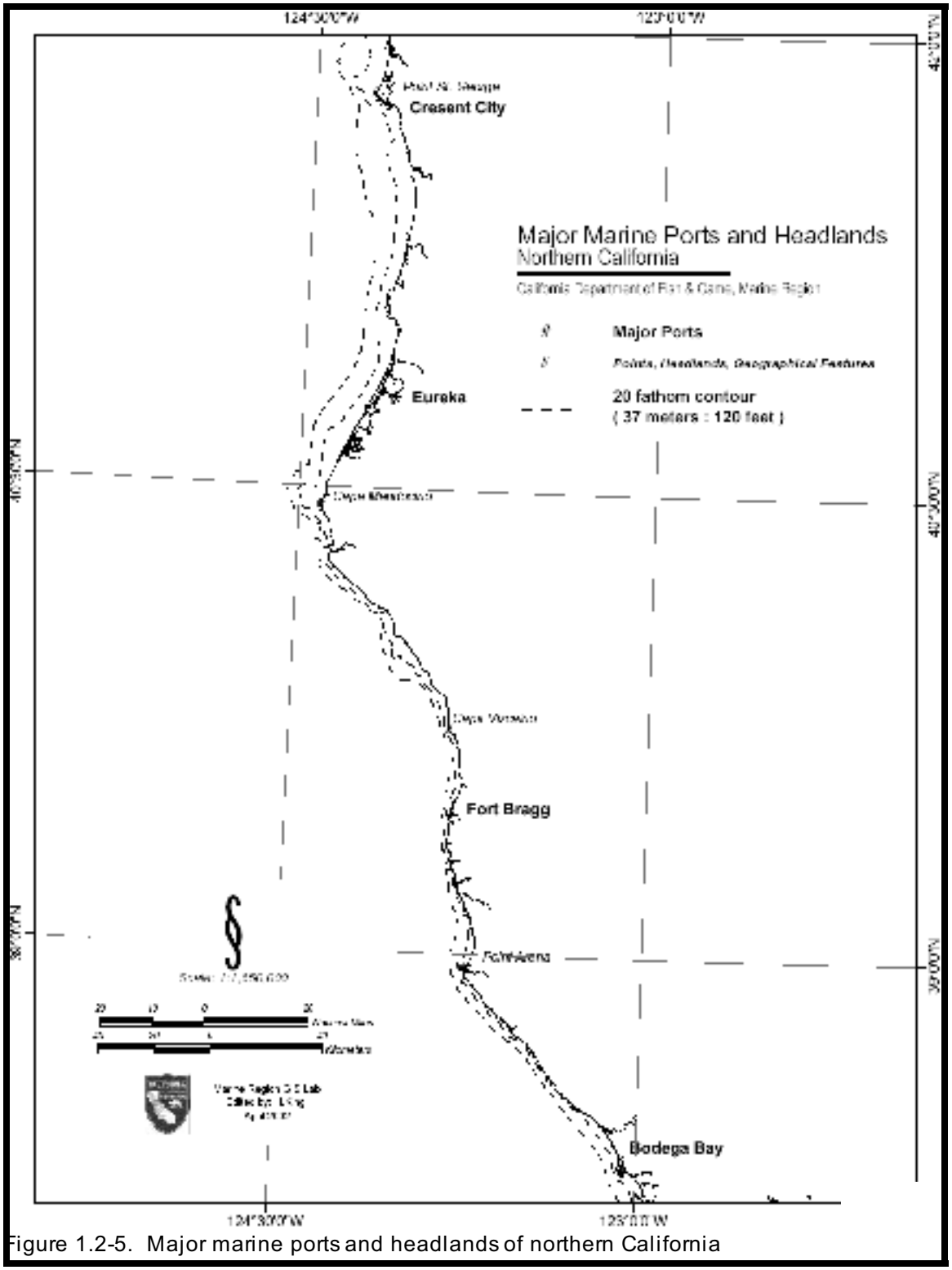

Figure 1.2-5. Major marine ports and headlands of northern California

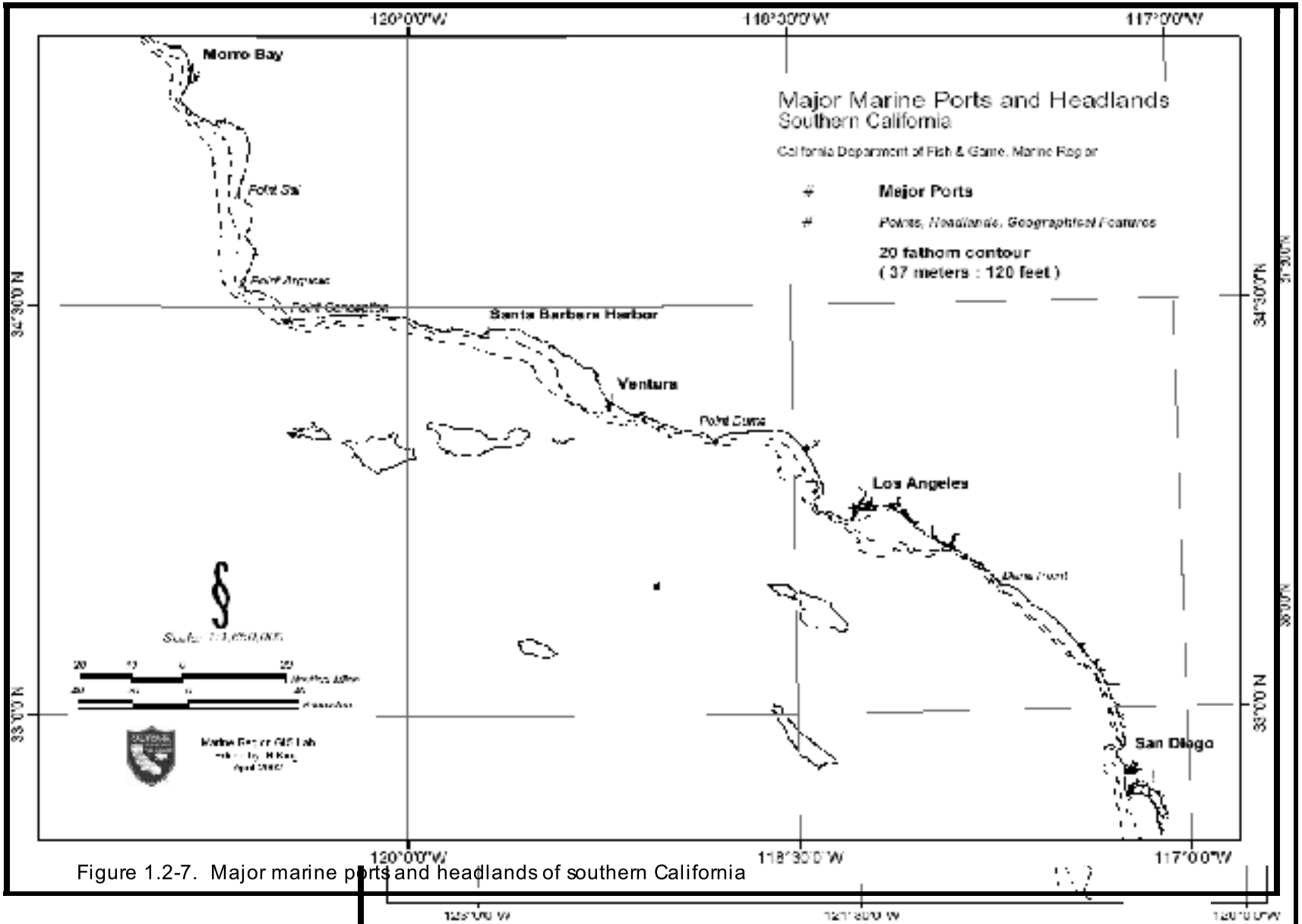

Figure 1.2-7. Major marine ports and headlands of southern California

Figure 1.2-6. Major marine ports and headlands of central California

Non-extractive Users

The 19 NFMP species are part of the nearshore reef and kelp bed ecosystem that is important to a number of non-extractive users, including non-extractive divers, passengers on sightseeing vessels, researchers, educators, and the conservation community. Divers enjoy viewing and photographing a number of different nearshore species. Passengers on sightseeing vessels with underwater viewing areas want to see an abundance of many types of fish. Researchers studying the natural history, ecology, and biology of these 19 species need thriving populations to observe and monitor. Educators and the conservation community share with other users a desire to have a healthy resource that can be studied and enjoyed by the people of California for generations to come.

Summary

These user groups have different preferences in their use of nearshore finfish. Spear fishermen may prefer to take fish of trophy size or a bag limit, while non-extractive divers may prefer both a large quantity and a high diversity of fish that they can observe or photograph. Some recreational anglers may enjoy catch-and-release fishing while others may prefer to land a full bag limit. Commercial fishermen and buyers want to maximize profit. Thus, they prefer to land as many fish as the markets can handle. Some of these preferences overlap and have the potential to create conflicts.

Fishing Effort and Landings Data Sources

Several sources of fishery-dependent data are used to describe the fishing activity of the nearshore fishery. Each of these sources has certain strengths and weaknesses, but as a group they represent the best available data for characterizing the nearshore fishery, and provide useful information for identifying trends.

The description of the nearshore commercial fishery is based upon data from two sources (The strengths and weaknesses of these data sources are listed in Table 1.2-2):

- Commercial Fisheries Information System (CFIS) for 1989-1999. This system contains all the commercial landings data in a database that is referred to as the CMASTR file. These data come directly from the dealer receipts that are completed at the time of landing for all commercial boats and they represent the best available data. Commercial data are presented in two forms: filtered and unfiltered. Filtered data represent those data subjected to certain criteria in order to obtain the following: bycatch estimates, number of boats and fishermen participating in the nearshore fishery, analyses by boat size and number of pounds landed by boat, and ex-vessel value estimates. Unfiltered data have not had any filters applied and thus represent the original (raw) CMASTR data. Data document the total pounds landed of nearshore market categories and the estimated ex-vessel values of those landings.
- Dockside sampling program. This program has been in place throughout this time period and is referred to as the California Cooperative Survey. One part of this program is CALCOM, the data entry and analysis segment. Results of these

analyses provide estimated landings by species and length/age analyses by species.

Table 1.2-2. Commercial databases used in NFMP data analyses, summaries, reports, etc.	
CFIS - CMASTR (Commercial Fisheries Information System - commercial landings database)	
Strengths	**Weaknesses**
Most recent record of commercial landings and activity (number of participants, boats, dealers, dates, etc.), and documents actual landings data	Recorded landings by "market categories" and not by actual species (though, in many cases market category designations and species are synonymous - therefore a major point of confusion and need for caution in interpreting data)
Only record of commercial landings (best available data)	Catch location and landing location may not be the same
Long-term database (1916 to the present)	Missing or incorrect information
Statewide, comprehensive by port	
Provides additional information on value of catch	
CALCOM (California Cooperative Survey - commercial landings sampling program)	
Strengths	**Weaknesses**
Species compositions of sampled market categories are estimated	Major target: groundfish (but not all groundfish)
Provides biological data: lengths, sex ratios, weights, ages of many species	Sampling logistics very difficult in certain ports
Provides a check link between sampling activity and commercial landings activity	Not enough samples and/or sampling due to personnel constraints
Provides landings estimates of species (known as "expanded" landings data)	Sampling concentrated in northern and central portions of the state with less data from southern portion

More detailed descriptions of CFIS and CMASTR are provided in the following box. Estimates of filtered and unfiltered CMASTR and CALCOM data are available in Appendix E.

Commercial Fisheries Information System (CFIS) and CMASTR

Commercial landings data are primarily obtained from market receipt information. Market receipts record the license number of the fisherman, registration number of the vessel making a landing, number of pounds landed for specific market categories, condition of the catch, port of landing, and the price per pound. By law a fish buyer must complete a market receipt (also commonly called a landing receipt, fish ticket, or pink ticket) at the time of delivery and submit these receipts to the Department on a semi-monthly basis. A single receipt may not represent a fisherman's entire daily catch, and a single day's catch can be sold to more than one buyer resulting in multiple landing receipts.

Buyers sort fish into different market categories and record weight on the receipt by those categories. Most market categories are not species-specific, and for most species there is no legal requirement to record species by any specific market category. Buyers often lump several species into one category based on price. Thus, landings recorded in a market category may contain one or several species.

Market category data are summarized three ways: statewide, by port complex, and by region. Ex-vessel values (price paid to fishermen) are presented for each summary. Because regulatory changes influence landings, tracking landings over time can, in part, document the affect of regulations on the fishery.

To describe the commercial nearshore fishery, Department staff selected market categories that would contain most of the landings of the 19 nearshore species. Three market categories, red rockfish, group small rockfish, and unspecified rockfish, are included in some descriptions and may provide an overestimation of total nearshore landings. For some descriptions these market categories are excluded and may provide an underestimation of total nearshore landings.

The description of the nearshore recreational fishery is based upon data from three sources (The strengths and weaknesses of these data sources are listed in Table 1.2-3.):

- The Marine Recreational Fisheries Statistics Survey (MRFSS) for 1980-1999. The MRFSS, which is the most comprehensive data set available for recreational landings, provides estimates by area and user-group of total effort (measured in angler days and angler-hours) and the total number of fish taken.
- Commercial Passenger Fishing Vessel (CPFV) logs for 1980-1998. CPFV operators record data for individual fishing trips in a log book that is then submitted to the Department and entered into a database.
- On-board CPFV surveys for central and northern California (data summarized for 1987-1998). Observers record information on the actual catch and effort for each trip, as well as more specific information on catch composition, the amount and size of landed fish, and bycatch.

Table 1.2-3. Recreational databases used in NFMP data analyses, summaries, reports, etc.

MRFSS (Marine Recreational Fisheries Statistics Survey- recreational landings by fishing mode)

Strengths	Weaknesses
Samples four fishing modes at all fishing access sites	Cost associated with two sampling efforts (field and phone surveys) higher than logbooks
All observed landings are by species	Low % sampling rate of angler trips
Information recorded by professional samplers	Effort derived from randomized digit phone survey of households in coastal counties, non-coastal effort estimated from ratios in the field survey
Provides historical record (1980 -present with break from 1990-1992)	In large sampling regions, difficult to sample fishing sites proportional to effort; this sometimes leads to rural areas having too few samples
Provides important source of socio-economic information	Allocation of field samples based upon past fishing information; recently new closed seasons are considered when allocating samples
Length, weight, and discard data available	Phone survey not designed to estimate effort for small geographic regions and depends on 2-month angler recollection of number of trips
Precise catch location recorded for party/charter vessels since 1999	Estimates of catch and effort only available by 2 month periods in southern or northern California
Estimates are made by weight as well as numbers	Sampling of party/charter vessels limited to cooperative vessels
Estimates are made of identified kept fishes, unidentified kept fishes, discarded fishes, and effort by region and by mode	For some sampled trips, discarded and filleted catch information depends on angler recollection
	The importance of a rare event catch (such as a marlin) is magnified in the estimates

Commercial Passenger Fishing Vessel Logbook (CPFV) (Logbook trip information)

Strengths	Weaknesses
Information available for entire State by port and Fish and Game block; can be summarized at multiple geographic scales	The species of catches are not always recorded
Provides historical landings and effort by trip for 1980 - present; summarized landings by block available since 1936	Catch data not recorded by professional samplers
	Accuracy varies by species and CPFV operator
Includes landings information for dive CPFVs	No biological data (lengths or weights) recorded
Costs less to collect data than sampling programs	Location recorded on a gross scale (10-by-10 nmi)

	Logbook reporting varies between ports and years and usually is less than 100% (17-100%)

Table 1.2-3 cont. Recreational databases used in NFMP data analyses, summaries, reports, etc.

CPFV Central/Northern CA Observer Program (Sports Fish Restoration Act - CPFV onboard sampling program)

Strengths	Weaknesses
Sampled vessels by port each month (as high as 5% sample rate)	Information only for central and northern CA
Catches identified to species level	Low sample size for area north of Cape Mendocino
Information recorded by professional samplers	Cost associated with sampling effort higher than logbooks
Includes location information (loran, latitude/longitude coordinates)	Sampling limited to cooperative vessels
Includes length and by-catch information	Uses adjusted CPFV logbooks to estimate effort
Catch estimates by port and month	
Rockfish species composition can be used with CPFV logbook data to generate estimates of rockfish catch by species	

A more detailed description of the MRFSS survey methodology is provided in the following box while information on CPFV logbooks and the on-board CPFV surveys is available in Appendix E.

MRFSS Data

The Marine Recreational Fisheries Statistics Survey consists of a randomized telephone survey of households in California counties that lie within 50 mi (80 km) of the coast, paired with a stratified random access point angler intercept field survey. The field survey is conducted through an on-site interview of recreational anglers by a fishery technician at the conclusion of angling for the day. The data collected through these two complementary surveys are mathematically expanded by strata, and provide estimates of many statistics for the marine recreational fishery for California as well as Oregon and Washington. These statistics include catch expressed as thousands of fish, and effort expressed as thousands of trips. A trip is defined as a single day of a fishing outing, or "angler day" regardless of the number of hours fished in the day. The MRFSS is a national program conducted by the National Marine Fisheries Service (NMFS). It was initiated on the Pacific coast in July 1979.

The MRFSS data are incorporated into the Recreational Fisheries Information Network (RecFIN) database, which is maintained by the Pacific States Marine Fisheries Service (PSMFC). RecFIN regularly prepares MRFSS estimates of catches and effort, which are available via the Internet at http;//www.recfin.org. In addition to each estimate, the Proportional Standard Error (PSE), which is expressed as a percent of the estimate, is provided on the Internet reports to indicate the accuracy of the estimate. Catch estimates for a fish species caught commonly over a wide geographic range will have a lower PSE value and will be more accurate than estimates for a species caught only occasionally. Catch estimates derived from larger geographical areas will also have a lower PSE value than those derived from smaller areas.

In conducting surveys and providing estimates of recreational fishing activity, MRFSS divides the state of California into two regions with a boundary at the border between San Luis Obispo and Santa Barbara Counties. With the exception of 1990-1992, MRFSS has conducted surveys continuously since 1980.

MRFSS collects information from anglers on the following topics:

- Area of fishing: To capture the total take, statistics for all ocean areas were used.
- Species of fish caught and retained or caught and discarded: Because there are over 50 species of rockfish in California waters, and the actual identity of some of the catch is generally not known, samplers record unidentified rockfish as either unspecified rockfish genus or unspecified Scorpionfish family.)
- Fishing mode: party or charter boat, private or rental boat, beach or bank, and man-made structures such as piers and jetties
- Type of catch: (catch for the nearshore finfish fishery combined the first two types.)
  1. fish that were kept, and identified, measured, and counted by a MRFSS sampler
  2. fish that have been caught but cannot be examined because, for instance, they have been filleted or thrown back
  3. fish that have been released alive

General Trends in Nearshore Commercial Fishing Activities in the 1980s and 1990s

Information from the commercial data sources were summarized to examine trends in the nearshore finfish landings and effort. The landings information provided below was summarized using the CALCOM database while effort information was summarized using the filtered CMASTR database.

Estimated statewide landings of cabezon, California sheephead, and greenlings were higher in 1999 than in 1989, but the trends over time varied among species

(Figure 1.2-8). Cabezon landings were relatively flat until 1994 then gradually increased through 1998. California sheephead landings increased steadily until 1993 then remained fairly level through 1998. Greenling landings in general increased since 1994. Nearshore rockfishes (including California scorpionfish and the four nearshore rockfish groups) peaked in 1992 then decreased so that by 1999 landings were similar to those observed in 1989.

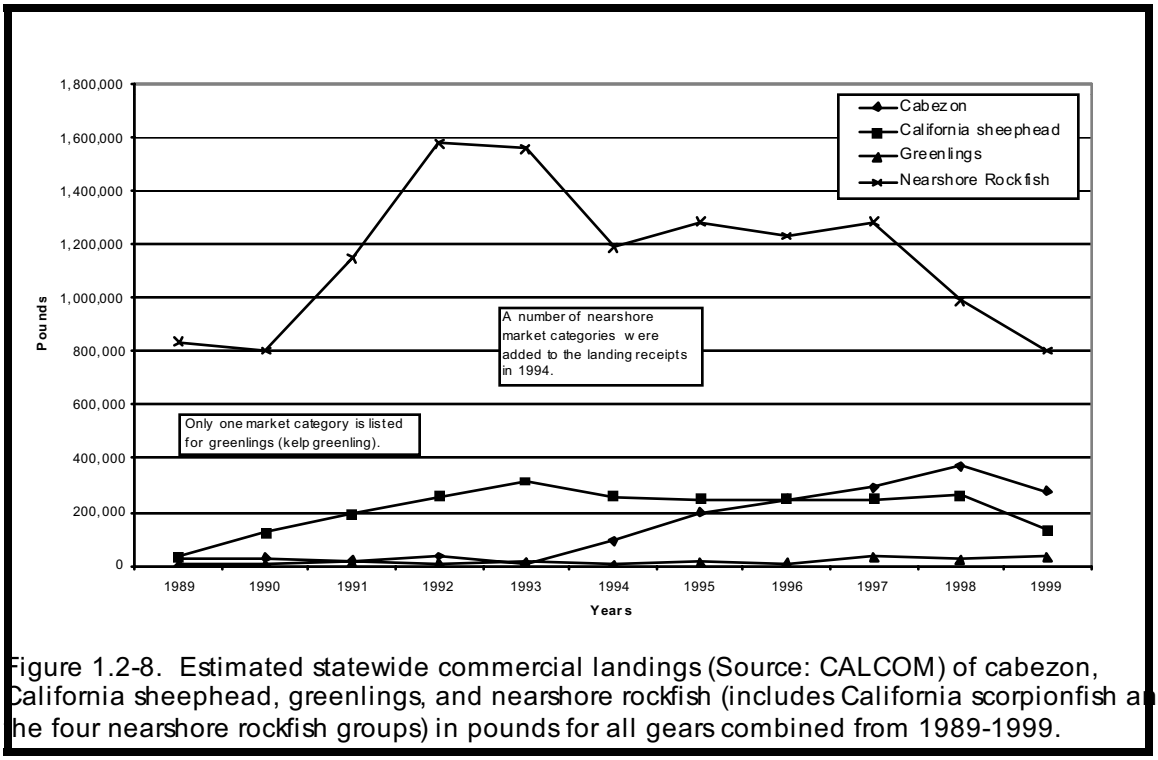

Figure 1.2-8. Estimated statewide commercial landings (Source: CALCOM) of cabezon, California sheephead, greenlings, and nearshore rockfish (includes California scorpionfish and the four nearshore rockfish groups) in pounds for all gears combined from 1989-1999.

A number of factors can impact how much of a species is landed in a given year. These factors include the biomass and age structure of the stock, the oceanographic environment, the socio-economic environment, and regulations. Some of the commercial regulations implemented over the past 11 years are shown in Figures 1.2-8, 1.2-10, 1.2-11, and 1.2-12. Other regulations, like the implementation of size limits for cabezon and California sheephead in 1999, are described later in this chapter under Recent Management of the Nearshore Finfish Fishery.

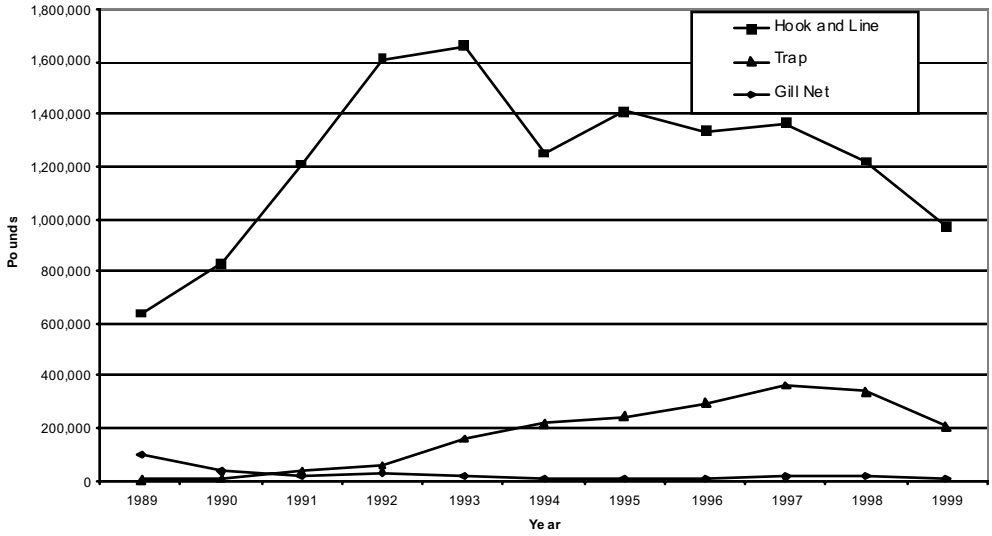

Figure 1.2-9. Estimated statewide commercial landings (Source:CALCOM) in pounds for hook-and-line, trap, and set gill and trammel net gear from 1989-1999.

Gill and Trammel Net Gear

By 1999 the number of boats landing nearshore fish caught by gill and trammel net gear decreased to about 23% of the 1989 level (Appendix E, Table E-32). This decrease was partly due to increased gear restrictions. Total landings of nearshore market categories from gill and trammel nets has decreased (Figure 1.2-9, Appendix E, Table E-32), with declines observed for nearshore rockfishes, California sheephead, cabezon, and greenlings (Figure 1.2-10).

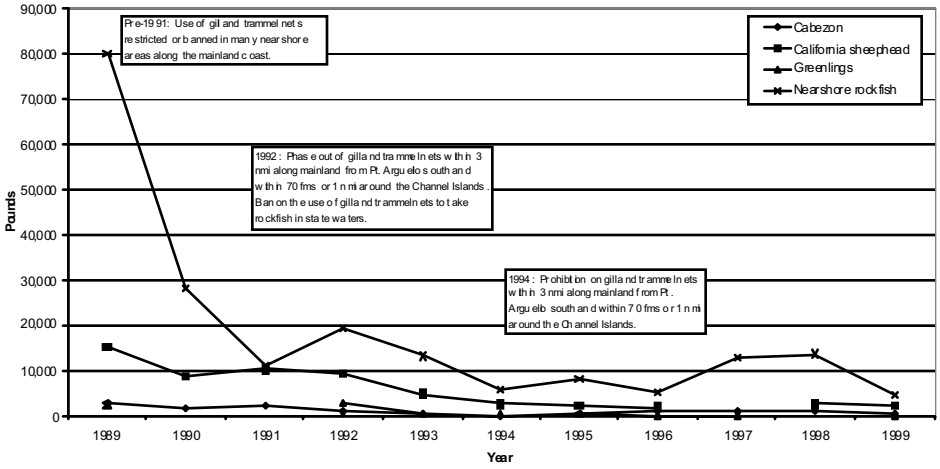

Figure 1.2-10. Estimated statewide commercial landings (Source:CALCOM) of cabezon, California sheephead, greenlings, and nearshore rockfish (includes California scorpionfish and the four nearshore rockfish groups) in pounds for set gill and trammel nets from 1989-1999.

Hook-and-Line Gear

The number of fishing boats using hook-and-line gear grew until the early-1990s then declined by 1999 to about 60% of its 1989 level (Appendix E, Table E-32). Total landings from hook-and-line gear peaked in 1992 and 1993, then decreased 40% by 1999 (Figure 1.2-9, Appendix E, Table E-426). The lower 1999 levels were due partly to stricter federal restrictions and some state restrictions for nearshore rockfishes. Hook-and-line catches of California sheephead peaked in 1992 also, while cabezon landings by hook-and-line gear increased sharply in 1995 and continued increasing through 1998 (Figure 1.2-11).

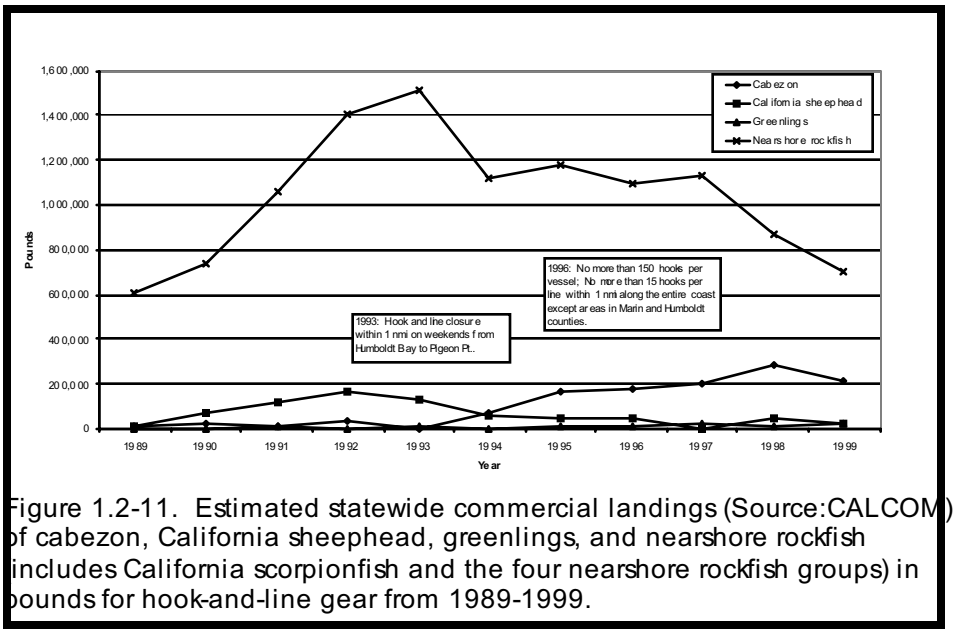

Figure 1.2-11. Estimated statewide commercial landings (Source:CALCOM) of cabezon, California sheephead, greenlings, and nearshore rockfish (includes California scorpionfish and the four nearshore rockfish groups) in pounds for hook-and-line gear from 1989-1999.

Trap Gear

The number of fishing boats using trap gear peaked in 1996, then declined to a 1999 level that was about twice as large as the 1989 level (Appendix E, Table E-32). Total landings of nearshore finfish caught with traps increased sharply in 1993 as the trap fishery for California sheephead expanded (Figure 1.2-9, Appendix E, Table E-427). Total landings peaked in 1997 then declined generally. By 1999, total trap gear landings stood at 43% of their 1997 level. Trap gear landings of California sheephead also peaked in 1997, then declined in 1999 to 60% of the 1997 level

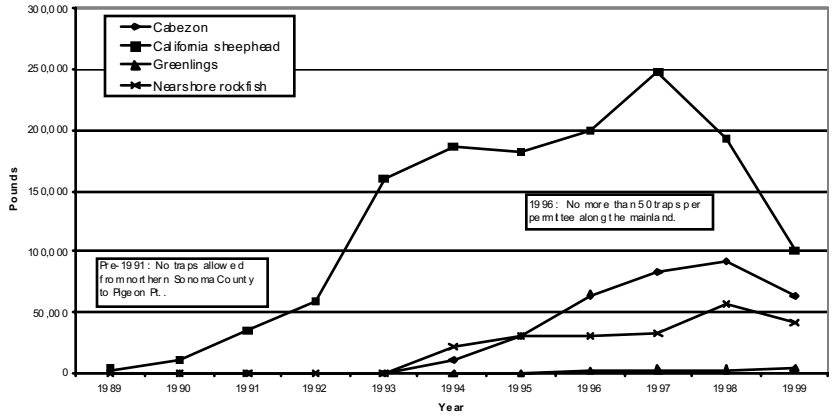

Figure 1.2-12. Estimated statewide commercial landings (Source:CALCOM) of cabezon, California sheephead, greenlings, and nearshore rockfish (includes California scorpionfish and the four nearshore rockfish groups) in pounds for trap gear from 1989-1999.

Figure 1.2-12). Landings of cabezon began rising in 1994 and continued to rise through 1998.

Group Red, Small, and Unspecified Rockfish Market Categories

The total rockfish catches presented in the previous graphics do not include the group red, group small, and group unspecified rockfish market categories. These categories contain variable amounts of nearshore rockfish although, generally, most of the poundage is from non-nearshore rockfish species. The poundage attributed to these categories decreased in the 1990s as more nearshore landings were reported by species, sampling effort increased, and, when more nearshore species were added to market receipts in 1994 (Figure1.2-13).

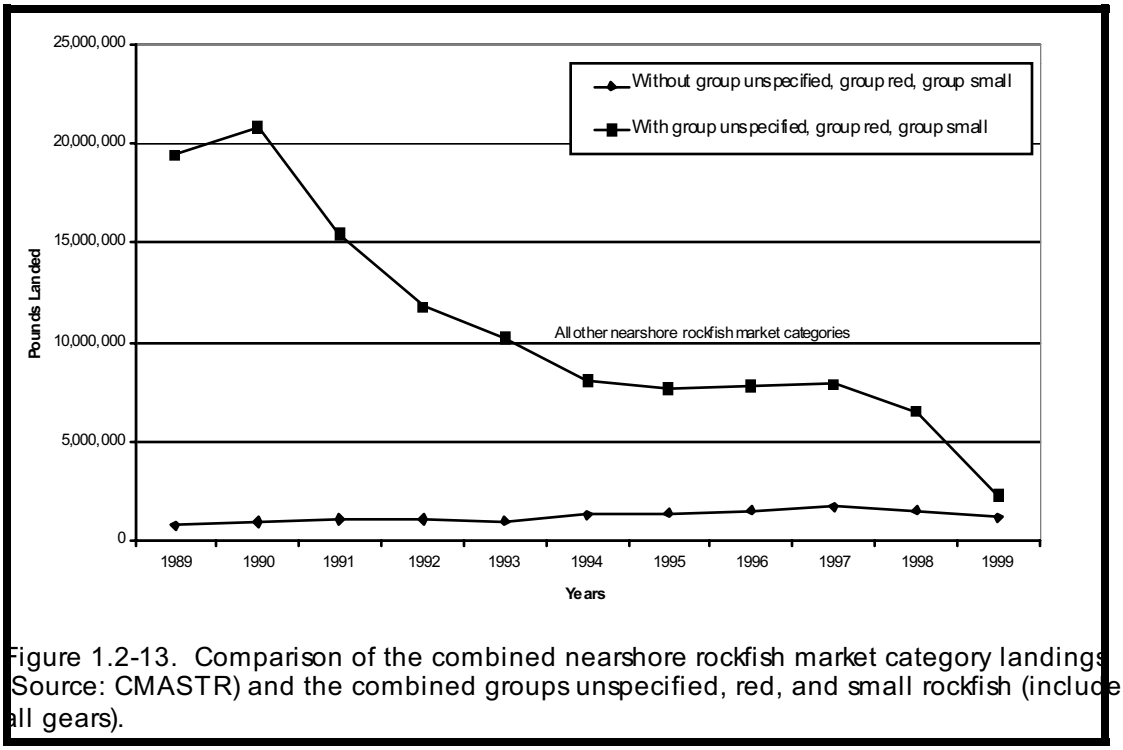

Figure 1.2-13. Comparison of the combined nearshore rockfish market category landings (Source: CMASTR) and the combined groups unspecified, red, and small rockfish (includes all gears).

General Trends in Nearshore Recreational Fishing Activities in the 1980s and 1990s

In general, recreational fishing effort for all modes in northern and southern California in the mid- to late-1990s was lower than in the early 1980s (Tables 1.2-4 and 1.2-5). Information from the recreational data sources were summarized to examine trends in the nearshore finfish effort and landings. The effort information was summarized using MRFSS data, while the landings information was summarized using a modified version of the MRFSS data. A description of the modifications (use of CPFV observer data to fill in missing data, etc.) is provided in Appendix E. Estimates of recreational landings for 1980-1982 were considered unreliable for nearshore species, so these years were not included.

Table 1.2-4. MRFSS estimated number of fishing trips in thousands by mode for northern California

Year	MODES					
	Party / charter	Private / rental	Man-made	Beach/ bank	Shore	Total
1980	453	992	944	1,159	No est.	3,548
1981	431	1,060	630	753	No est.	2,875
1982	426	777	529	819	No est.	2,551
1983	372	961	870	795	No est.	2,998
1984	239	991	711	773	No est.	2,715
1985	226	1,023	540	738	No est.	2,528
1986	197	1,285	No est.	No est.	1,276	2,757
1987	213	1,198	No est.	No est.	1,003	2,414
1988	340	1534	No est.	No est.	2066	3939
1989	217	823	No est.	No est.	1,368	2,408
1990	No est.	No est.	No est.	No est.	No est.	No est.
1991	No est.	No est.	No est.	No est.	No est.	No est.
1992	No est.	No est.	No est.	No est.	No est.	No est.
1993	No est.	1,055	514	582	No est.	2,152
1994	No est.	1,007	349	611	No est.	1,966
1995	No est.	1,074	608	662	No est.	2,345
1996	98	669	554	644	No est.	1,965
1997	154	670	661	580	No est.	2,065
1998	164	885	473	438	No est.	1,960
1999	165	945	404	248	No est.	1,762
2000	215	1,052	456	478	No est.	2,200

Table 1.2-5. MRFSS estimated number of fishing trips in thousands by mode for southern California

	MODES					
Year	Party /charter	Private / rental	Man-made	Beach/ bank	Shore	Total
1980	1,698	2,540	2,961	1,742	No est.	8,942
1981	991	1,705	1,287	1,075	No est.	5,058
1982	1,825	1,767	1,369	765	No est.	5,726
1983	1,257	1,932	1,156	792	No est.	5,137
1984	1,109	2,206	1,488	768	No est.	5,572
1985	1,152	1,966	1,415	741	No est.	5,273
1986	1,340	2,514	No est.	No est.	2,263	6,117
1987	860	2,495	No est.	No est.	1,832	5,187
1988	1195	2328	No est.	No est.	2474	5,996
1989	1,134	1,658	No est.	No est.	1,852	4,643
1990	No est.	No est.	No est.	No est.	No est.	No est.
1991	No est.	No est.	No est.	No est.	No est.	No est.
1992	No est.	No est.	No est.	No est.	No est.	No est.
1993	1,174	1,625	827	411	No est.	4,038
1994	1,201	1,932	1,210	406	No est.	4,748
1995	1,131	1,706	900	536	No est.	4,272
1996	982	1,266	835	328	No est.	3,410
1997	812	1,249	808	373	No est.	3,243
1998	676	1,356	675	298	No est.	3,005
1999	609	1,169	574	219	No est.	2,572
2000	876	1,760	720	352	No est.	3,708

On average, recreational landings of cabezon, California sheephead, greenlings, and nearshore rockfish were lower in the 1990s than in the 1980s (Figures 1.2-14, 1.2-15, 1.2-16 and 1.2-17).

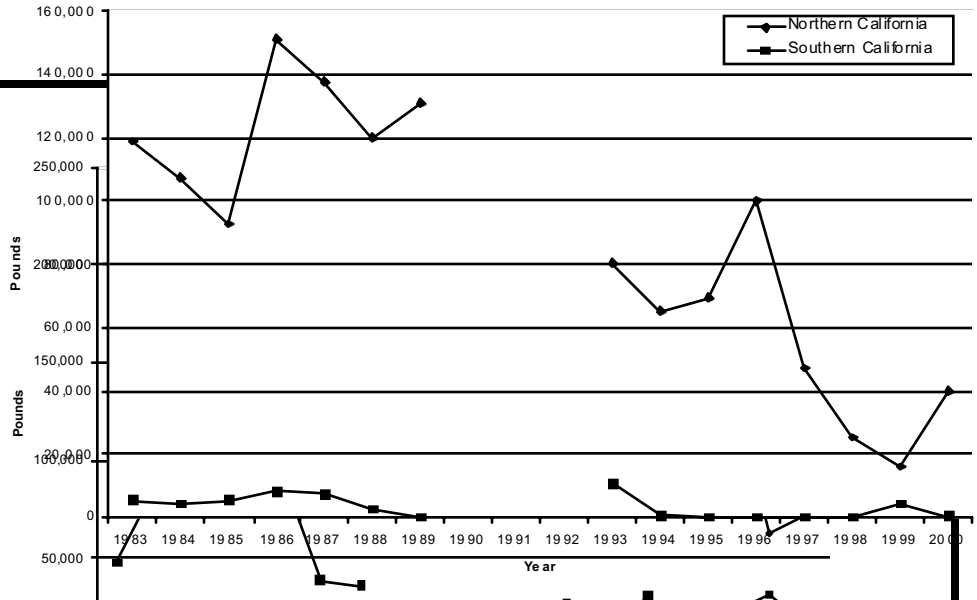

Figure 1.2-16. Northern and southern California recreational landings (Source: MRFSS) of greenlings (kelp greenling, rock greenling, and greenling genus) in pounds from 1983-2000. No recreational data available from 1990-1992.

Figure 1.2-14. Northern and southern California recreational landings (Source: MRFSS) of cabezon in pounds from 1983-2000. No recreational data available from 1990-1992.

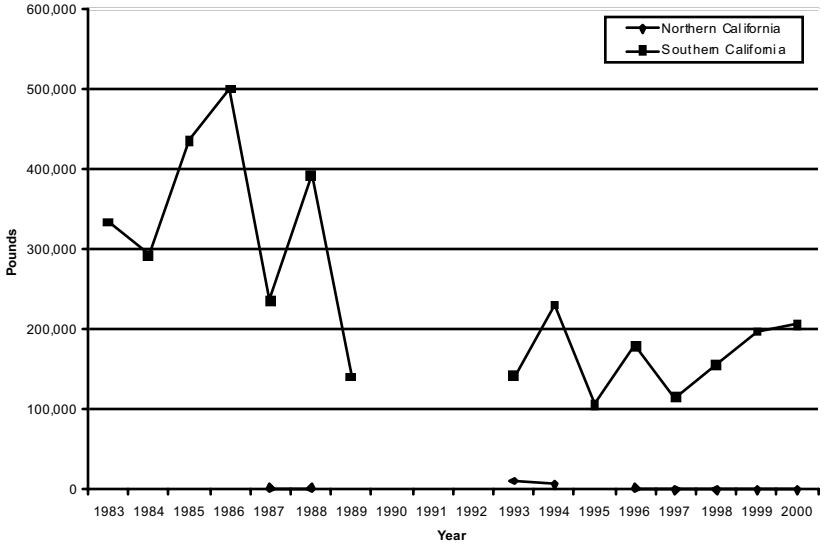

Figure 1.2-15. Northern and southern California recreational landings (Source: MRFSS) of California Sheephead in pounds from 1983-2000. No recreational data available from 1990-1992.

General Trends in

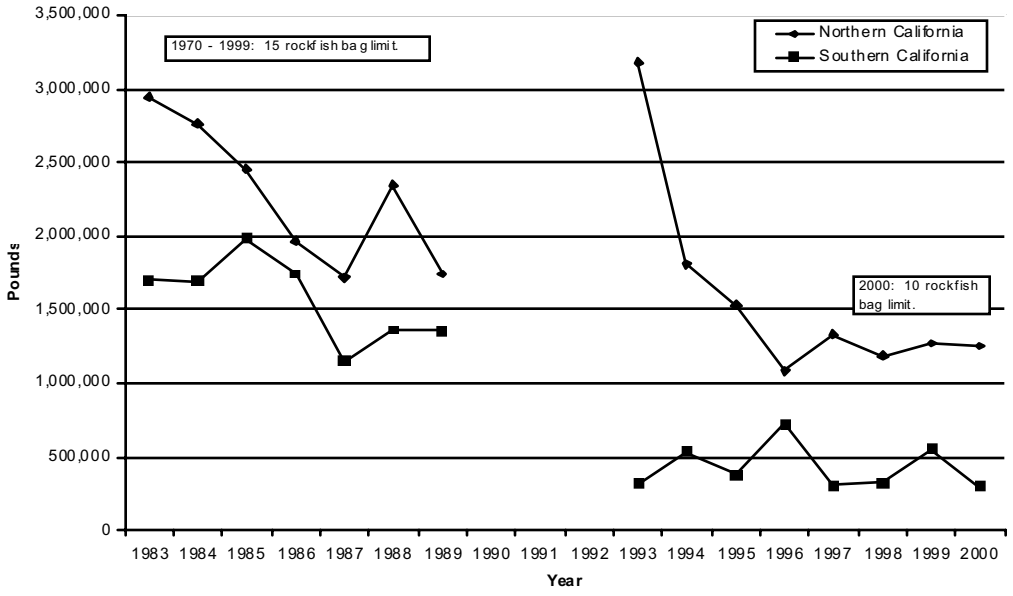

Figure 1.2-17. Northern and southern California recreational landings (Source: MRFSS) of nearshore rockfishes (including California scorpionfish) in pounds from 1983-2000. No recreational data available from 1990-1992.

Commercial and Recreational Catches

Commercial and recreational fishermen take the 19 NFMP species in all water depths in which they occur. To examine the impacts of the combined recreational and commercial take, as well as to determine the proxies for total allowable take discussed in Chapter 3, an estimate of total catch (take from all areas) is required. For these determinations and for the purposes of analysis of impacts of management measures on the nearshore finfish fishery, the fishery is considered to occur along the entire California coast in those waters inhabited by the 19 species.

Data from recreational catch estimates (source: MRFSS data for all ocean areas) and from commercial landings (source: CALCOM) indicate the following patterns in recreational and commercial catches of nearshore finfish species in the two periods 1983-1989 and 1993-1999. Once again, MRFSS recreational fishery data from 1980-1982 are not used because it is considered unreliable. (Note that MRFSS data are not available for 1990-1992. Also, landings of monkeyface prickleback were not examined.)

Cabezon, California Sheephead, and Greenlings

The average landings of cabezon and California sheephead were higher in the later period, while landings of the greenlings were lower (Table 1.2-6). In terms of total landings during each period, recreational landings of these species were higher in the earlier period (Table 1.2-7, and Figures 1.2-18, 1.2-19, and 1.2-20). Commercial landings increased sharply for these species in the early 1990s. In the mid- to late-1990s commercial landings of cabezon and California sheephead overtook recreational landings. Recreational fishermen generally landed fewer cabezon, California sheephead, and greenlings in the 1990s.

Table 1.2-6. Averages in pounds for commercial and recreational landings combined, from two time periods, 1983-1989 and 1993-1999, for cabezon, California sheephead, greenlings, and nearshore rockfish

	Average combined landings	
Species	1983 - 1989	1993 - 1999
Cabezon	258,374	364,163
California sheephead	391,604	410,101
Kelp and rock greenling	129,231	77,666
Nearshore rockfish	4,397,541	3,158,299

Table 1.2-7. Total recreational, commercial and combined landings in pounds from two time periods, 1983-1989 and 1993-1999, for cabezon, California sheephead, greenlings, and nearshore rockfish.

	Cabezon	California sheephead	Kelp and rock greenling	Nearshore rockfish
Total recreational landings				
1983 - 1989	1,682,395	2,339,620	891,908	26,961,447
1993 - 1999	1,063,361	1,151,571	420,627	14,569,653
Total commercial landings				
1983 - 1989	126,220	401,608	12,707	3,821,339
1993 - 1999	1,485,779	1,719,134	123,033	7,538,439
Total combined landings				
1983 - 1989	1,808,615	2,741,228	904,615	30,782,786
1993 - 1999	2,549,140	2,870,705	543,660	22,108,092

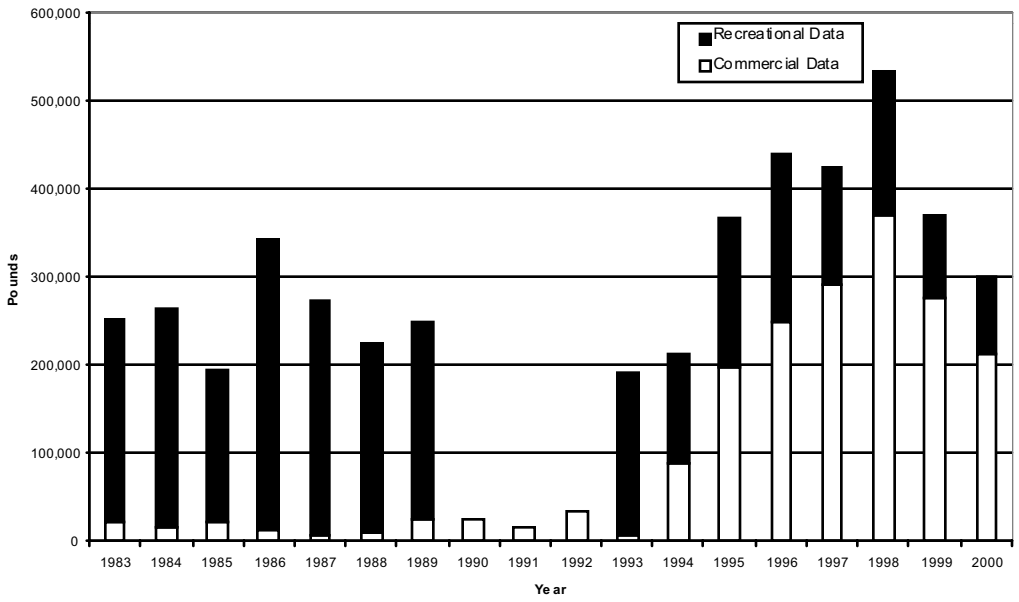

Figure 1.2-18. Statewide recreational (Source: MRFSS) and estimated commercial (Source: CALCOM) landings of cabezon in pounds from 1983-2000. No recreational data available from 1990-1992.

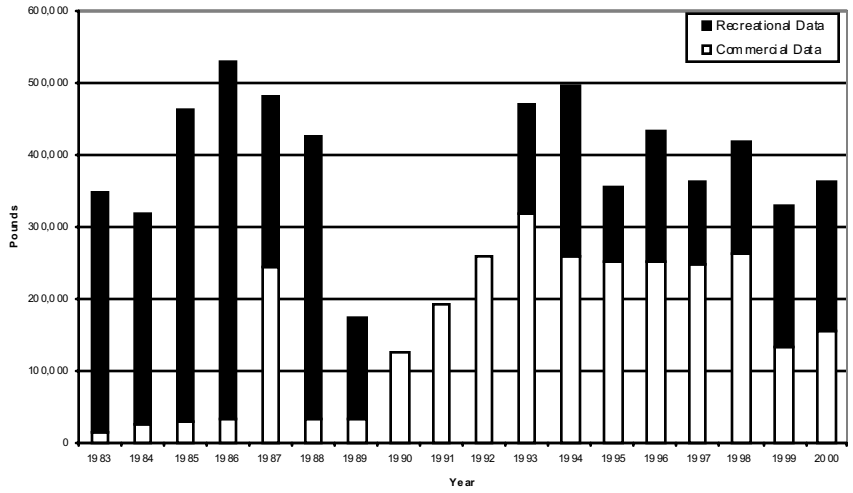

Figure 1.2-19. Statewide recreations (Source: MRFSS) and estimated commercial (Source: CALCOM) landings of California sheephead in pounds from 1983-2000. No recreational data available from 1990-1992.

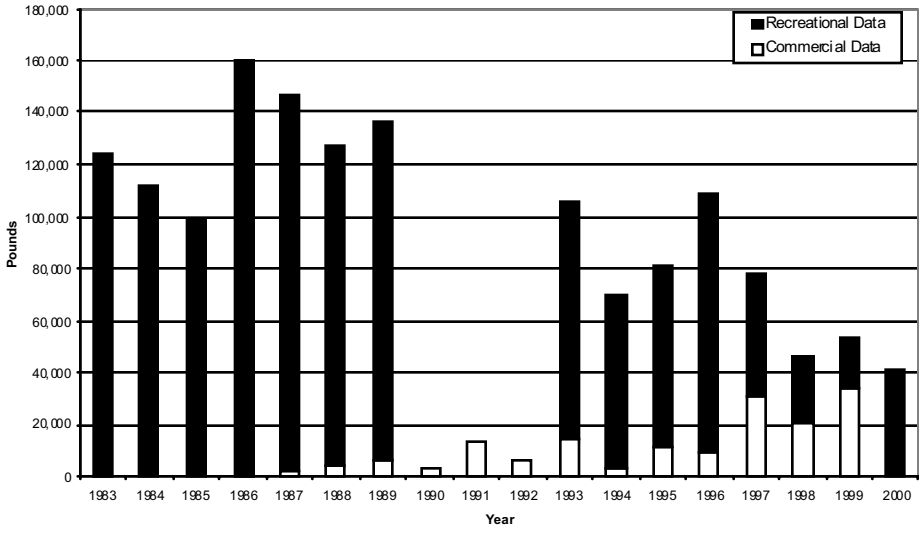

Figure 1.2-20. Statewide recreational (Source: MRFSS) and estimated commercial (source: CALCOM) landings of greenlings (kelp greenling, rock greenling, and greenling genus) in pounds from 1983-2000. No recreational data available from 1990-1992.

Nearshore Rockfish including California Scorpionfish

Nearshore rockfish landings had a dramatic decrease in numbers from the 1980s to the 1990s (Figure 1.2-21). Landings in the 1980s were primarily due to the recreational fishery with a small contribution by the commercial fishery. During the 1990s, recreational landings showed a marked decrease while commercial landings

increased slightly. Despite this fluctuation, commercial landings remained lower than recreational landings. In 1983-1989, 3,851,635 lb (1,751 mt) of rockfish were landed on average by the recreational fishery per year, while the commercial fishery landed on average 545,906 lb (248 mt). For 1993 to 1999, average annual recreational landings decreased to 2,081,379 lb (946 mt), while average annual commercial landings increased to 1,076,920 lb (490 mt).

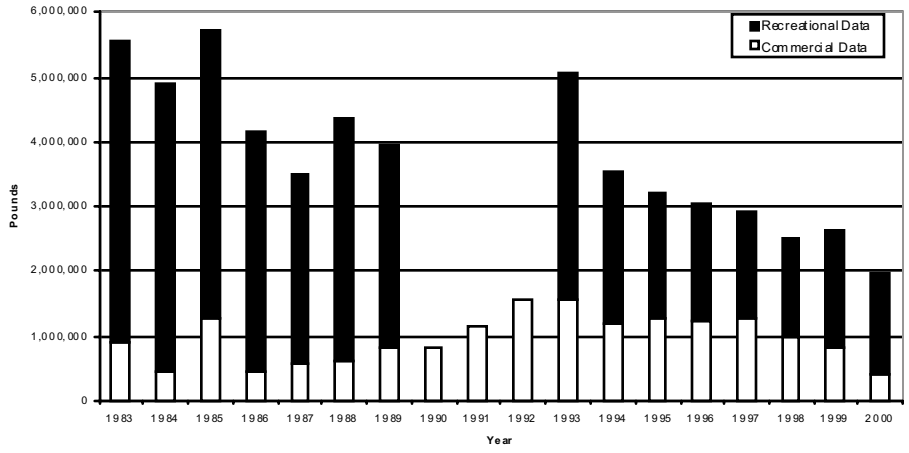

Figure 1.2-21. Estimated statewide recreational (Source: MRFSS) and commercial (Source: CALCOM) landings of nearshore rockfish (includes California scorpionfish and the four nearshore rockfish groups) in pounds from 1983-2000. No recreational data are available from 1990-1992.

Monkeyface Prickleback

Combined recreational and commercial landings of monkeyface prickleback were not examined. Monkeyface prickleback is taken by a small fishery primarily directed at this species; effort and landings are small. Consequently, minimal data are available for this species. However, monkeyface prickleback is of concern because it particularly vulnerable to depletion both on a local and coast-wide scale: not only does it occupy a very unique and limited habitat, but it also is a residential species with a small home range of several meters.

Summary of Commercial and Recreational Catches

Changes in commercial landings from the late 1980s to the mid-1990s were due to several factors. Increases in the landings of cabezon, California sheephead, and greenlings, and decreases in the overall rockfish landings resulted in part from new regulations. In 1994 the Council implemented limited entry for a portion of the groundfish fishery (about a dozen species comprise the groundfish complex) with Amendment 6 of the Pacific Coast Groundfish Fishery Management Plan (Pacific Fishery Management Council 1992). Amendment 6 established restricted access for a portion of the fishery while keeping a segment of the fishery open access. Optimum yields (OYs) were allocated to the two segments of the fishery. This allowed new entrants into the open access segment of the fishery; however, low annual quotas discouraged participants from making major investments in gear. In the mid-to-late 1990s the allowable harvest for groundfish, particularly the rockfish portion, was greatly reduced, initially due to the depressed status of lingcod and bocaccio, cowcod, and canary rockfish. These low quotas shifted effort to those species of the nearshore area that did not fall under the quotas, such as cabezon, greenlings, and California sheephead. The lower 1999 landings of cabezon (Figure 1.2-18) were to some degree the result of even stricter federally mandated harvest quotas and new state management measures for nearshore species.

At the state level, gear restrictions in the early 1990s led some gill and trammel net fishermen to change gears and move into the nearshore fishery where participants could make a living with much lower landings, smaller vessels, and lower investments in fishing gear.

The growth of markets for live and premium-quality finfish also contributed to the growth of the commercial fishery beginning in the late 1980s. The live and premium-quality finfish fishery first developed for Asian markets in the Los Angeles and San Francisco areas. As demand for live fish increased, buyers began paying considerably more for live fish than for dead fish. For instance, buyers paid fishermen, on average, $.50 per lb for dead cabezon in 1989, compared to $3.80 per lb for live cabezon in 1999. These substantially higher prices, coupled with lower capital and operating costs, attracted more fishermen to the fishery.

Stick gear - a type of hook-and-line gear fished on the bottom or at mid-depth that uses multiple short (3-6 ft) lengths of either rigid (PVC plastic pipe, rebar) or semi-rigid (metal cable) sections. A length of line is attached parallel to the stick, with short leaders and hooks attached. These sticks can serve as the weight or anchor. It can be rigged to work as either a horizontal or vertical set line gear, and generally has a surface buoy attached.

In the early years of this live and premium-quality finfish fishery (late 1980s and early 1990s), much of the effort occurred outside kelp beds. Fishing with rod and reel within the beds was difficult. Trapping for fish within kelp beds occurred, but for the most part trapping effort within kelp beds was low. Then in the mid 1990s, the live and premium-quality finfish fishermen developed a special gear, **stick gear**, that allowed efficient fishing within kelp forests. As the use of this stick gear expanded, the commercial harvest from within kelp beds increased, raising concerns over the continued productivity of the nearshore area and the need to assess the total harvest and the overall health of the fish stocks which live there.

Other factors have affected commercial and recreational catches of nearshore finfish also. For instance, nearshore finfish populations have been affected by both short-term oceanographic changes such as El Niño events, and the long-term shift from a cold to a warm water regime in the late 1970s (Hare and Mantua 2000; Hanawa 2000; Anonymous 2000). Changes in the oceanic environment alter the ecosystem, affecting the abundance and distribution of fish populations as well as reproductive success of individual fish. The shift to a warmer water regime has resulted in low recruitment and productivity for colder water species such as rockfish and salmon, while populations of Pacific sardine have returned to the very high abundance levels of the 1930s (Chavez et al. 2000; Klyashtorin 2000; MacCall 2000; Moser et al. 2000; Anonymous 2000; Rodriguez-Sanchez et al. 2000).

In addition, a number of other factors probably affected the commercial and recreational landings including local fish abundance, variations in recruitment into the fishery due to changes in year-class strength, changes in the strength of the national economy, shifts in effort to other more desirable species (such as salmon and albacore), and fluctuations in stock biomass.

Nearshore Bycatch

Bycatch "means fish or other marine life that are taken in a fishery but which are not the target of the fishery. Bycatch includes discards" (FGC § 90.5). Discards "means fish that are taken in a fishery but are not retained because they are of an undesirable species, size, sex, or quality, or because they are required by law not to be retained" (FGC § 91). Take "means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (FGC § 86).

There are three principal types of bycatch in the nearshore fishery. The first type is a fishery whose target species is other than nearshore finfish, but nearshore finfish are inadvertently taken. For example, commercial and recreational fishermen may target salmon on a trip. However, they may encounter a school of black rockfish and land these rockfish as a bycatch of the trip.

The second type of bycatch occurs when the target species are nearshore finfish, but the species taken are nontarget finfish species, nearshore finfish below the minimum size limit, or the maximum daily bag limit for a nearshore species is exceeded. Nearshore species are discarded by fishermen because of minimum size or daily bag limits, and it is illegal to possess them.

The third type of bycatch is a fishery whose target species is nearshore finfish; however, there is a take of other marine life. For example, fishermen may use bait, such as northern anchovies, *Engraulis mordax,* or Pacific sardines, *Sardinops sagax,* to capture nearshore finfish. Unfortunately, brown pelicans, *Pelecanus occidentalis,* and gulls, *Laurus spp*., are hooked when diving for these bait fish.

Bycatch information and management measures must be included in any fishery management plan (FMP) in fisheries where bycatch occurs (FGC § 7085). Bycatch occurs in the nearshore fishery. Therefore, FGC § 7085 requires the following information and management measures.

While there are no statistical measures on the legality of nearshore finsish species, most of the observations have shown this bycatch is

Legality of the Bycatch Under Any Relevant Law [FGC §7085 (b)(1)]

While there are no statistical measures on the legality of nearshore finfish species, most of the observations have shown this bycatch is legal for both recreational and commercial fisheries.

One area of concern is the take and landing of nearshore species as a bycatch of other fisheries. For example, the commercial trawl net fishery within the Halibut Trawl Grounds (FGC §8495 through 8497) allow for a 500-pound fish bycatch. Nearshore species have minimum size limits. However, since the nearshore species captured in this fishery are dead when they are taken, they may be landed legally even if they are below the minimum size limit.

Brown pelicans and gulls are taken as a bycatch in the recreational fishery. This is not a legal bycatch.

Information on the Amount and Type of Bycatch

Recreational Bycatch

All recreational fisheries modes (i.e., boat, man-made structures, and shore) have a nearshore finfish bycatch. An example of this information is from the Department's CPFV central and northern California onboard sampling observer data. The findings of this study were as follows: kept fish represent the proportion of the total catch assumed to be taken home and consumed by an angler. Samplers categorized the ultimate fate of each observed fish as either kept, released (dead/alive), bait, or unknown. There are many factors that affect the rate at which fish are retained by anglers. All the nearshore species are retained 100% of the time. These species are considered highly prized. "High-grading" is a common practice on CPFVs which also has a significant effect on retention rates. "High-grading" means that an angler replaces less choice or smaller species with more larger and/or more desirable species caught later. Often smaller fish were observed placed in a communal bucket; to be used as bait, to complete bag limits for anglers who did not fill their bag limit, as limits for the crew, or to be discarded during the return trip. "High-grading" also affects retention rates of less desirable species. Lower retention rates can also reflect years of good recruitment to the fishery for a particular species. Species demonstrating good recruitment to the fishery is often reflected by higher numbers of small fish being caught by anglers. These smaller fish are retained by anglers at a low rate. Section 4a within Appendix E has the retained percent of all fish from observed CPFV trips by port from 1988-1998.

Commercial Bycatch

The Department has only a limited amount of information (and in some cases none at all) on the bycatch of nearshore species in other commercial fisheries. Information on the bycatch of nearshore fishes in the prawn and salmon fisheries is currently being analyzed.

During the analysis of the CMASTR data, the landings of nearshore market categories recorded with other fisheries were identified (Appendix E, Table E-560 through E-571). These landings are summarized in Table 1.2-8.

California scorpionfish taken in trawl gears accounted for 40 percent of the nearshore landings associated with other fisheries. Trawl gear is not considered a nearshore gear. Thus, the nearshore landings recorded on trips using trawl gears are most likely bycatch.

All the landings of nearshore market categories recorded with salmon, crab, spiny lobster, and prawns may not be bycatch. For this analysis, a trip (or landing) was defined as all receipts from one boat with the same date of landing. During a trip, several gear types may have been used. Consequently, it is not possible to distinguish between poundage that was bycatch and poundage that was taken with different gears on the same trip. For example, a boat landing spiny lobster (taken in lobster traps) on the same day as California sheephead (taken in finfish traps) would be considered as one landing. The averages provided in Table A for these fisheries should therefore be viewed as a summation of both bycatch and catch from multiple gears.

Table 1.2-8. Annual average landings (pounds) of nearshore market categories that appeared in other fisheries, 1994-1999.

Market Category	Salmon	Crab	Spiny lobster	Prawns	Trawl gears	Average total
Cabezon	73	894	373	1,788	1,461	4,588
California scorpionfish	10	296	352	100	31,428	32,187
California sheephead	17	2,149	5,717	3,686	1,112	12,681
Greenlings	4	61	5		1,492	1,562
Monkeyface prickleback		2			1	3
Rockfishes						
Black	199	758	1	16	6,647	7,621
Black-and-yellow		2				2
Blue	130	808		12	729	1,679
Brown	106	206			11,638	11,950
Calico						0
China	52	37	4	1	987	1,081
Copper	230	34	6	12	1,115	1,395
Gopher	164	226	44	432	1,673	2,539
Grass	8	52	64	182	71	378
Kelp	8	10			25	44
Olive	12				32	43
Quillback		4		2	37	43
Treefish			3		173	177
Total of average landings of nearshore market category in fishery	1,012	5,541	6,569	6,231	58,620	77,972

Note: A trip or landing is defined as all receipts from one boat with the same date of landing and may be the result of a fishing trip lasting from part of a day to several days in length. Several gear types may have been used on one trip.

Degree of threat to the Sustainability of the Bycatch Species

The effects of the NFMP Project on listed species, such as tidewater goby, salmon, and seabirds, are described in NFMP, Section 2, Chapter 4.1.9.3, Effects to Listed Fishes and Chapter 4.1.9.4, Effects to Marine and Coastal Birds.

The no project alternative would not change gear types from those that currently exists. In addition, bycatch would continue to affect the nearshore fishes, marine mammals, and marine and coastal birds. The potential for marine turtles and fishing gear interactions would remain unchanged in their utilization of pelagic habitats for migration and feeding (NFMP, Section 2, Chapter 5.1.7, Effects to Pelagic Habitats). There is no identified acceptable level of seabird bycatch from fisheries that have been established by the federal government that manages listed species (NFMP, Section 2, Chapter 5.1.9.4, Effects to Marine and Coastal Birds).

Ecosystem Impacts

Fishing activities associated with the NFMP Project that could have deleterious effects to coastal habitats include an increase of bycatch discards if fishing is relocated outside of MPAs (NFMP, Section 2, Chapter 4.1.5 and 4.1.7, Effects to Coastal Habitat and Effects on Pelagic Habitat).

The restricted access alternative will not have additional effects to the environment beyond the no project alternative as the same amount of fish would be taken (NFMP, Section 2, Chapter 5.13, Alternative 13 for Restricted Access: Managing Bycatch in Other Commercial Fisheries).

In the Case of Unacceptable amounts or Types of Bycatch, Conservation and Management Measures that, in the following priority, do the following:

Minimize ByCatch

Fishery management benefits of MPAs include full protection for some fraction of target and bycatch populations. Marine Protected Areas can reduce bycatch of non-targeted species and undersized individuals of target species (NFMP, Section 2, Chapter 2.1, Marine Protected Areas).

Elimination of traps would decrease the bycatch of invertebrates inadvertently caught in traps. Therefore, this alternative could decrease effects to habitats and species if gear restrictions are implemented to only allow hook and line fishing (NFMP, Section II, Chapter 5.9, Alternative 9 for Restricted Access: Restricted Access Program Based on Regional Management).

Minimize Mortality of Discards that cannot be Avoided

Some nearshore species are found offshore (farther than one nautical mile from the mainland coast) and are taken by trawl and gill net gears. In the restricted access alternative, vessels using gill net or trawl gear would not be issued a nearshore permit. They would be allowed to take the original nine nearshore fish species as long as the weight did not exceed a set weight or a percentage (5 to 15 percent) of the total landing weight of the participant's catch. A set weight limit is easier for the fishermen and Department enforcement staff to monitor. A fixed percentage of the landing weight is more difficult to monitor because of the necessity to know total weight of the landing for all species. This allowance will be set during implementation of the Restricted Access program and may vary by region.

This alternative avoids wastage of the catch of nearshore species by allowing the landing of those species without requiring a nearshore permit. This allows fishermen to land nearshore fish without increasing the number of nearshore fishery permits. Allowing the landing of nearshore species would eliminate the need to discard these fish at sea and would provide a record of that take which could be monitored. An allowance from the commercial allocation for gill net and trawl gears would be needed (NFMP, Section 2, Chapter 2.14, Managing Bycatch in Other Commercial Fisheries).

Socio-economic Dimensions of the Nearshore Finfish Fishery

Eco-centric - values orientated toward the maintenance of an overall ecological balance.

The nearshore area provides opportunities for a broad variety of extractive and non-extractive uses and values. These include recreational and commercial fishing (extractive use), diving, sight-seeing, photography (non-extractive use), and passive values such as bio-diversity, resource preservation, or **eco-centric** values.

Extractive uses often involve an active market, such as a seafood market or charter fishing service, in which goods and services that cater to the end-user or consumer are traded. In such markets, the money spent on goods or services provides a convenient means of measuring the value of a particular resource activity. Some non-consumptive uses, on the other hand, do not involve such active markets, making it difficult to establish the value of such uses. Nonetheless, non-consumptive uses are important and do represent another value placed on the resource by the public. Estimating economic value should include these extractive and non-extractive values, as well as passive values, which are the unpriced attributes of the nearshore resource.

Commercial and recreational fishing produces goods and services that are bought and sold. This buying and selling generate revenues that cause a ripple effect in the California economy. Money or revenues resulting from these user-sectors stimulate further economic activity throughout California in the form of economic output, earnings, and employment.

Recreational Sector

California's nearshore recreational fishery is subject to variation depending on recent climatic conditions and availability of popular fish species. According to the USFWS 1996 survey of recreational activities, California ranks second in the nation for numbers of resident and nonresident saltwater anglers. Florida ranks first with an estimated 2,255,000 saltwater anglers, California ranks second with an estimated 1,049,000 saltwater anglers, and Texas ranks third with an estimated 862,000 saltwater anglers. This same survey suggested that California's sportfishermen spent approximately $3,648,532,000 on recreational fishing in salt and fresh water. Of this amount approximately $734,150,000 was related to all marine fishing activities, including expenditures for equipment and travel.

In addition, studies by DFG indicate shallow water rockfish make up as much as 44% (by number) of recreational catches in northern and central California (Karpov et

al. 1995). The MRFSS also provides estimates of recreational expenditures. According to MRFSS, local expenditures for marine angling in northern California in 1998 averaged $34 a day for charter or rental boat fishing, and $9 per day for shore-based fishing (NMFS 1998). Local expenditures for marine angling in southern California in 1998 averaged $35 a day for charter or rental boat fishing, and $10 per day for shore-based fishing. While this expenditure information is based on all marine recreational fishing, we estimate that about half of these activities were conducted in the nearshore area (NMFS 2001).

Dollars spent on nearshore recreational fishing activities circulate in local economies through the purchase of fuel, bait, angling equipment, and other items associated with saltwater angling. Furthermore, nonresident expenditures for recreational fishing represent an important flow of **new (outside) dollars** into the local economy and circulate through local industry sectors. Estimates of new dollars entering local coastal economies from recreational angling appear in Table 1.2-9.

Table 1.2-9 Economic input of *new dollars* to local coastal economies from recreational angling in the nearshore area in 1998 and 1999 (adjusted for inflation and expressed in year 2000 dollars) *

	1998	1999
Northern California	$9,456,210	$8,905,540
Southern California	$9,919,565	$9,929,304
Totals	$19,375,775	$18,834,844

* Estimates are based on MRFSS 1998 and 1999 data for number of angler days in ocean waters less than 3 miles from shore, for all modes of fishing, multiplied by respective cost data for parking, boat, and bait expenses, for Northern and Southern California, and adjusted to year 2000 values.

Based on the estimate of new dollars coming into the local coastal economies in 1998 and 1999, we project the total contribution of nearshore recreational fishing to local **economic output**, earnings, and employment in Table 1.2-10 (US Department of Commerce, RIMS II 1997).

Surveys by the NMFS and the Federal Bureau of the Census estimate that the number of marine anglers will increase at a rate of about 1.96% annually, on average, from 2001 through the year 2025 (US Dept. of Commerce 2000). However, similar projections of growth in the past have not materialized, and in California, the number of recreational fishing licenses has declined.

In 1998, 73% of surveyed anglers worked full-time, 11% were retired, and 7% worked part-time. The average hourly wage for west coast anglers in 1998 was $20, and the average annual household income before taxes was $58,000 for surveyed anglers on the entire West Coast. The 1998 MRFSS data indicate that the majority of California's marine anglers are white males between the ages of 26 and 55.

New (outside) dollars - revenues that enter the local economy resulting from local goods or services that are sold outside the local economy (exported)

Economic output - represents deliveries of final goods and services by the sector to domestic households, investment, government and non-profit institutions, and net exports outside the local economy.

Ex-vessel - refers to the price paid to fishermen.

Commercial Sector

California ranks among the top five seafood producing states in the nation (California Seafood Council 2001). The total **ex-vessel** value of all 1999 California commercial landings amounted to $143,327,950. Of this amount approximately $3,721,838, or 2.8%, was derived from the 19 finfish species discussed in the NFMP. Growth or decline in even one segment of the commercial fishing industry can affect seafood production, trade, and employment throughout California's economy (McWilliams and Goldman 1994) because commercial fishing dollars spent on nearshore harvest activities contribute to local economies through the purchase of fuel, bait, fishing gear, equipment, and support services. In addition, sales of products exported out of the local economy represent an important influx of new dollars back into the local economy. Local revenues increase as these new dollars from outside the local economy launch a ripple effect through local business sectors and additional output is stimulated.

Table 1.2-10. Economic contribution of *new dollars* to local coastal economies from recreational angling in the nearshore area in 1998 and 1999 (adjusted for inflation and expressed in year 2000 dollars), in terms of economic output, earnings, and employment*

	1998	1999
Northern California		
Input of new dollars	$9,456,210	$8,905,540
Output	18,220,225	17,159,194
Earnings	$4,735,670	$4,459,894
Employment (# full-time jobs)	125	118
Southern California		
Input of new dollars	$9,919,565	$9,929,304
Output	19,113,018	19,131,783
Earnings	$4,967,718	$4,972,595
Employment (# full-time jobs)	132	132

* Multipliers used in the above are for the entire State, and not specific to northern or southern California. Local (regional) multipliers vary according to the nature and composition of industries in each area, and the degree of imports into each local economy (leakage).

As described in table 1.2-11, the average price per pound paid to fishermen for nearshore finfish increased dramatically in the 1990s as demand for live fish grew.

Table 1.2-11. Commercial nearshore finfish landings and ex-vessel value, by year, for 19 nearshore finfish species with all commercial gear types combined (excluding trawl)[1]

Year	Pounds landed	Value ($)	Value/pounds ratio ($/lb)	Value ($) adjusted for inflation and shown in 2000 values[2]	Value/pounds ratio ($/lb) in 2000 values
1989	631,220	487,270	0.77	660,255	1.05
1990	789,622	824,049	1.04	1,055,031	1.34
1991	935,124	1,084,113	1.16	1,333,393	1.43
1992	903,258	1,198,509	1.33	1,423,678	1.58
1993	754,943	1,366,840	1.81	1,583,454	2.10
1994	1,167,478	2,147,753	1.84	2,448,457	2.10
1995	1,228,918	2,683,633	2.18	3,014,475	2.45
1996	1,409,792	3,120,290	2.21	3,436,923	2.44
1997	1,499,501	3,120,291	2.08	3,373,528	2.25
1998	1,430,506	3,411,377	2.38	3,632,539	2.54
1999	1,061,450	3,313,842	3.12	3,436,142	3.24

1. Does not include values (or pounds) for nearshore species in commercial landings reported as Group Red, Group Small, or Group Unspecified.

2. 2000 Values are calculated using Consumer Price Indices (CPI) for California's primary Metropolitan Statistical Areas: San Francisco, Los Angeles, and San Diego, weighted by respective population numbers. CPI data come from the Federal Bureau of Labor Statistics, U.S. Department of Labor. Metropolitan Statistical Areas are defined as large population nuclei, together with adjacent communities which have a high degree of economic and social integration with that nucleus. These are defined by the Federal Office of Management and Budget as a standard for federal agencies in the preparation and publication of statistics relating to metropolitan areas.

The nearshore commercial finfish fishery is pursued at different levels of intensity around each of the nine major port complexes. The ports with the highest average value for nearshore species landed in 1989 through 1999 were Morro Bay and Santa Barbara, with 18.9% and 19.3%, respectively, of the average total value. The maximum pounds landed by nearshore fishermen at each port indicates the fishing potential or harvest capacity of the fleet. As shown in Table 1.2-12, the maximum pounds landed in a port in a single year may be two to three times the average pounds landed for that port during the entire period.

Table 1.2-12. Average annual commercial landings, pounds, and value, for NFMP species during 1989- 1999, all gears except trawl *

	Average pounds	Average value ($)	Maximum pounds	Maximum value ($)	Average price/pound
Eureka	263,851	124,205	773,679	299,556	0.47
Fort Bragg	229,841	251,027	528,541	506,520	1.09
Bodega Bay	247,812	178,217	800,527	345,141	0.72
San Francisco	557,591	468,982	1,260,868	817,783	0.84
Monterey	599,343	405,807	1,781,818	893,376	0.68
Morro Bay	716,687	1,085,712	1,221,722	1,638,600	1.51
Santa Barbara	731,130	976,624	1,413,679	1,191,387	1.34
Los Angeles	248,119	388,657	570,436	638,254	1.57
San Diego	188,292	261,008	415,970	442,850	1.39
Totals	3,782,665	4,140,240	8,767,238	6,773,465	

* Does not include values (or pounds) for nearshore species in commercial landings reported as Group Red, Group Small, or Group Unspecified.

The commercial fishing sector stimulates local economies both directly and indirectly. By calculating the economic effect of landings we can project the changes in local economic output, individual earnings, and employment (full-time jobs), from nearshore commercial fishing (Table 1.2-13).

Table 1.2-13. Economic contribution of nearshore finfish commercial fishing to local port economies, based on average landings by all gears except trawl, during 1989-1999 inclusive*

Port area	Local economic output ($)	Personal local income ($)	Local employment (# full-time jobs)
Eureka	172,111	43,124	1.1
Fort Bragg	336,352	83,793	2.1
Bodega Bay	276,789	70,663	1.9
San Francisco	641,473	75,272	1.7
Monterey	561,109	134,687	3.4
Morro Bay	1,572,003	339,068	8.7
Santa Barbara	1,471,382	343,381	8.8
Los Angeles	699,932	149,905	3.8
San Diego	420,327	110,798	2.9

* Does not include landings values for nearshore species in commercial landings reported as Group Red, Group Small, or Group Unspecified.

Each dollar of commercial fish landings that enters the local economy through transactions between nearshore fishermen and buyers may stimulate another $1.00 to $1.92 output in other local sectors. Various economic sectors benefit from this ripple effect, including non-fishery sectors and fish processing sectors: fish wholesalers, fish importer/exporters, seafood restaurants, seafood markets, and other food and kindred product businesses. In general, the degree to which these ripple effects increase local

output depends on the size and nature of the local economy. Larger local economies tend to be more self-sufficient and include more businesses, and thus a given dollar will circulate more (Radtke 1987).

Non-Extractive Uses

Among many non-extractive activities in the nearshore area are wildlife observation, coastal cruises, sea kayaking, scuba diving, wind surfing, and beach and tidepool exploring. While some scuba and free diving involves consumptive activities like spearfishing and the harvest of abalone, many scuba and skin divers engage solely in underwater photography and wildlife viewing.

Ocean and coastal features play an important role in California recreation, both to individual recreation seekers and to recreation-dependent industries. In addition, the quality of the nearshore environment is an integral part of the recreational enjoyment, and includes the vitality and diversity of marine life. Based on the number of visitors in 1991, four out of the State's top 10 recreational attractions were ocean or coastal in nature. Partaking of coastal recreation usually entails a bundle of activities; for example, an underwater photographic trip may also involve kayaking or sailing, or include local lodging, restaurant, or other tourist services. The California Research Bureau estimated the value of tourism and recreation along the California coast in 1992 at $9.9 billion, making it the largest component of ocean-dependent industry (California Environmental Resources Evaluation System 1999). Adjusted for inflation, this would be the equivalent of $11.8 billion in year 2000 dollars.

According to the USFWS 1996 survey of recreational activities, California ranks first in the nation for participating in wildlife watching activities in California, with an estimated 2,362,000 participants. These participants averaged about 10.5 days each in non-extractive pursuits, for a total of 24,587,000 person-days during 1996. This survey indicates that 27%, or 637,740 of these individuals visited nearshore (or oceanside) areas in California, where about one-half engaged in some form of shorebird and marine mammal observation. Expenditures on all California wildlife related non-extractive recreation in 1996 amounted to $2,396,809,000, with an estimated $647,138,000 (or 27%) directed toward nearshore recreation. Of the estimated expenditures on nearshore non-extractive recreation, about $43,300,000 (or 7%) is from new dollars originating outside the local economies (arising from nonresident expenditures). Using this figure for new dollars coming into California's local coastal economies in 1996, we project the contribution to local economic output, earnings, and employment in Table 1.2-14.

Table 1.2-14. Economic contribution of *new dollars* to local coastal economies from non-extractive nearshore recreation in 1996 (adjusted for inflation and expressed in year 2000 dollars), in terms of output, earnings, and employment*

	1996
California input of new dollars	$43,775,000
Output	84,345,670
Earnings	$21,922,520
Employment (# full-time jobs)	581

* Multipliers used are for the entire State. Local (regional) multipliers vary according to the nature and composition of industries in each area, and the degree of imports into each local economy (leakage).

Other, less tangible benefits derived from the nearshore area include conservation of natural resources, education, and research. While we recognize that recreational and tourist activities represent a bundle of values related to the nearshore, we cannot accurately project the direct contribution of the 19 NFMP species to these values. Thus inferences of the value of nearshore fish species as an integral component of nearshore recreation, based on recreation and tourism expenditures, will tend to be overstated. As **coastal communities** recognize and promote economic returns from tourism and recreation, there is growing awareness of the importance of quality environments. Individuals also gain increased environmental consciousness through meaningful encounters with nature.

History of Conservation and Management Measures

State Management

California can regulate fishermen licensed in California, wherever they fish. It can also regulate fishermen licensed in other states whenever they fish in California waters or land in a California port. If vessels from other states fish beyond three miles offshore and do not call at a California port, the state cannot control their activities. Similarly, the states of Oregon and Washington do not have jurisdiction over California vessels that fish in waters more than three miles off their shores and land their catches in California.

Within California state government, there are three principal “managers” of marine life and fisheries: the Legislature, and the California Fish and Game Commission and the California Department of Fish and Game, both of which reside within the Resources Agency. The California State Constitution established the Commission to carry out functions delegated by the Legislature. The Commission’s five members are appointed by the Governor to 6-year terms. The authority and responsibility of the Commission and the Department to make and enforce regulations governing recreational and commercial fishing is provided by the Legislature. Before 1998, when the Legislature enacted the MLMA, the authority of the Commission was restricted to managing sport fisheries, kelp harvesting, and some commercial fisheries; creating ecological reserves; and taking emergency actions.

The State has managed commercial and recreational fisheries through regulating gear, species, and participants. Unless mentioned by name in the regulations, any species may be taken without restriction for commercial purposes. If a species is mentioned in regulations, it may be taken only under the conditions described in those regulations. The FGC prohibits commercial fishing for several dozen species. Only those types of fishing gear listed in the FGC may be used. These gears include gill and trammel nets, round-haul nets, trawl nets, beach nets, dip nets, fishing lines, spears, traps, and shovels, among others. Use of each of these types of gear is subject to restrictions. Regulations also require that commercial fishermen, fishing vessel operators, crew members, and others obtain various licenses and permits. Commercial fishing regulations appear in FGC §7600-9101 and CCR, Title 14, Chapter 6.

Who Manages California's Finfish Fishery?

Responsibility for the management of the nearshore finfish fishery off California is shared by the state and federal government. Generally, living marine resources from the shoreline to 3 miles are under state jurisdiction, while living marine resources in waters from 3 miles to 200 miles offshore – the U.S. Exclusive Economic Zone (EEZ) – are under federal jurisdiction. The management of the 19 species of nearshore finfish that are the subject of this FMP is more complicated, however. Since most of these species have been caught in significant numbers by commercial and recreational fishermen in federal waters, through the NMFS and the Pacific Fishery Management Council (PFMC). As a result, the boundaries for state management of fishing for most nearshore finfish species have been set by the PFMC and NMFS **(Table 1.2-15)**.

The Commission considers commercial regulations when necessary throughout the year. The Commission takes up sport fishing regulations at its August, October, November, and December meetings in odd-numbered years. State marine sport fishing regulations include restrictions on catching and retaining some species, but not others, and specify open and closed seasons, permissible fishing gear, and other matters. General recreational fishing laws appear in FGC §7100-7400, while specific regulations adopted by the Commission appear in Chapter 4 of Title 14 of the CCR.

Table 1.2-15. Factors Related to the 19 Species Included in the California NFMP

Species	Included in CA MLMA?	Included in West Coast Groundfish FMP?[1]	Proposed for CA nearshore restricted access	Average annual recreational landings CA (1993-2000, mt)[2]	Average annual commercial landings, CA (1993-2000, mt)[2]
Monkeyface prickleback	Y	N		2.54	0.17
California sheephead	Y	N	Y	74.9	106.25
California scorpionfish	Y	other rockfish	Y	110.32	37.31
Black-and-yellow rockfish	Y	other rockfish	Y	9.37	12.89
Gopher rockfish	Y	other rockfish	Y	57.06	35.87
Kelp rockfish	Y	other rockfish	Y	14	4.2
Grass rockfish	Y	other rockfish	Y	7.96	33.01
Treefish rockfish		other rockfish		12.94	0.75
Calico rockfish		other rockfish		0.55	0.07
Olive rockfish		other rockfish		51.76	15.42
China rockfish		other rockfish	Y	17.95	19.29
Cabezon	Y	not actively managed	Y	63.45	96.33
Rock greenling	Y	N	Y	4.71	0.002
Kelp greenling	Y	not actively managed	Y	19.36	5.59
Copper rockfish		other rockfish		63.11	56.62
Quillback rockfish		other rockfish		7.99	11.31
Brown rockfish		other rockfish		49.86	38.33
Blue rockfish		other rockfish		238.14	58.71
Black rockfish		North-remaining South-other		164.82	107.37

Notes: 1. The species included in both the West Coast Groundfish FMP and the CA NFMP fall into three PFMC management categories. "Remaining rockfish" have been assessed by less rigorous methods than stock assessments. Black rockfish north of Cape Mendocino is the only species in this category. "Other rockfish" do not have quantifiable assessments. However, the remaining and other rockfish are assigned proxy OYs as a group. No OYs are calculated for the "not actively managed" species. 2. All recreational landing data from RecFin. (Notes continued on next page)

Table 1.2-15. Factors Related to the 19 Species Included in the California NFMP

Species	Commercial % caught in state waters off CA, 1993-2000[2,3]	% of total 3-state landings (and average annual metric tons) for each state, 1993-2000[2]: recreational & commercial landings CA	OR	WA	Common (and total) depth range, in feet[4]	Being considered for interim management in Oregon?
Monkeyface prickleback	100%	100% [2.71]	0	0	(<80)	
California sheephead	87%	100% [181.15]	0	0	(<300)	
California scorpionfish	50%	100% [147.63]	0	0	20-450 (<600)	
Black-and-yellow rockfish	99%	100% [22.26]	0	0	<60 (<120)	Y
Gopher rockfish	95%	>99% [92.93]	<1% [0.002]	0	<120 (<260)	Y
Kelp rockfish	98%	100% [18.2]	0	0	<50 (<150)	Y
Grass rockfish	99%	>99% [40.97]	<1% [0.54]	0	<20 (<150)	Y
Treefish rockfish	95%	100% [13.69]	0	0	<90 (<170)	Y
Calico rockfish		100 % [0.62]	0	0	<300 (<840)	Y
Olive rockfish	85%	100% [67.18]	0	0	<180 (<570)	Y
China rockfish	78%	64.8% [37.24]	32.8% [18.87]	2.4% [1.38]	<300 (<420)	Y
Cabezon	94%	74.2% [159.78]	21% [45.21]	4.8% [10.24]	<90 (<360)	Y
Rock greenling		100% [4.71]	0	0		Y
Kelp greenling	81%	36% [24.95]	35% [24.29]	29% [20.24]	<50 (<150)	Y
Copper rockfish	68%	76.4% [119.73]	6.2% [9.72]	17.4% [27.22]	<400 (<600)	Y
Quillback rockfish	75%	44.6% [19.3]	17.9% [7.77]	37.5% [46.22]	<250 (<900)	Y
Brown rockfish	83%	99.1% [88.19]	0.1% [0.07]	0.8% [0.73]	<175 (<440)	Y
Blue rockfish	61%	72.6% [296.85]	26.8% [109.7]	0.5% [2.18]	<130 (<1,800)	Y
Black rockfish	70%	23.5% [272.19]	54.7% [632.76]	21.7% [251.11]	<300 (<1,200)	Y

3. All commercial landing data are from the Pacific Fisheries Information Network (PacFIN), which was the nation's first regional fisheries data network. PacFIN includes information from fisheries occurring in waters off the coasts of Washington, Oregon, California, Alaska, and British Columbia. Fish-ticket and vessel registration data are provided to PacFIN by CDFG through the CalCOM commercial landings database. In addition, commercial data sources include catch-by-area proportions developed from CDFG port sampling and trawl logbook data systems. PacFIN landings are reported in metric tons, and include the calendar year 2000, which was not available for most of the other commercial landings data summaries presented in the NFMP.

CEQA and Environmental Document General Overview

Both the State Legislature and the Fish and Game Code require that people conserve, maintain, and use California's living marine resources and environment in a way that promotes health and benefits its citizens. The California Environmental Quality Act, enacted in 1972, oversees all state-sponsored and permitted projects that may change the environment. Through the CEQA process, government officials and the public learn about a project's potential to adversely impact the environment, and identify ways to avoid significant negative impacts. Projects are reviewed following CEQA guidelines: their potential effects on the environment are evaluated, and ways to avoid significant negative impacts are identified. Based on this evaluation, the lead agency then adopts or prepares a Negative Declaration, a mitigated Negative Declaration, or an Environmental Impact Report.

State agencies such as the Department of Fish and Game that regulate and protect the environment may prepare a functional equivalent Environmental Document (ED) instead of an Environmental Impact Report. The ED, prepared by the lead agency with input from the public and interested organizations, is streamlined for CEQA inclusion in a more comprehensive regulatory package such as the NFMP, and fulfills all CEQA requirements. The final ED will be incorporated into the Commission's proposed regulatory program.

In reviewing and adopting or rejecting regulations, the Commission must comply with procedural requirements of such laws as the Administrative Procedures Act (APA)and the California Environmental Quality Act (CEQA) (see gray box). Besides the APA (Government Code §11340-11359), the Commission must follow its own rulemaking process, which appears in FGC §200-221.

Before 1998, when the Legislature enacted the MLMA, management of other activities affecting marine life, including fisheries, was carried out through legislation. Two committees have principal jurisdiction over fisheries legislation in the Assembly: the Committee on Water, Parks, and Wildlife, and the Committee on Natural Resources. In the Senate, the Committee on Natural Resources and Wildlife has primary jurisdiction. The Senate and Assembly's Joint Committee on Fisheries and Aquaculture plays an important role as well. Most legislated measures concerning marine wildlife are assembled in the FGC, while others may be found in other codes such as the Public Resources Code.

The Department manages activities affecting marine wildlife, primarily fisheries, by implementing state and federal legislation and state regulations adopted by the Commission or the Department itself. The Department also provides expert advice to the Commission, carries out research, and enforces fisheries regulations and law. A chronological list of state and federal regulations can be found in Appendix F.

Federal Management

The federal agency with primary responsibility for the conservation of marine wildlife and the management of marine fisheries is the NMFS, an agency of the National Oceanic and Atmospheric Administration in the U.S. Department of Commerce.

Other Federal Law

Several other federal laws concern the management of activities affecting marine life off California. The National Marine Fisheries Service splits responsibility with the Interior Department's U.S. Fish and Wildlife Service for species under the Endangered Species Act and the Marine Mammal Protection Act (MMPA). For instance, while the U.S. Fish and Wildlife Service holds responsibility for the conservation of southern sea otters and birds, NMFS oversees the conservation of seals, sea lions, dolphins, and whales off California.

Several species of marine life have been listed under the Endangered Species Act of 1973. The Endangered Species Act prohibits "taking" an endangered species; taking means "to pursue, hunt, shoot, capture, collect, kill or attempt" to do so. Limited taking of an endangered species incidental to activities such as fishing may be permitted. These and other protections for endangered species do not apply to threatened species unless separate regulations are adopted. Under Section 7 of the Endangered Species Act, federal agencies must consult with NMFS or the U.S. Fish and Wildlife Service to ensure that their actions do not jeopardize the continued existence of listed species (see Section II, Chapter 4 for a discussion of endangered and threatened species.)

The Marine Mammal Protection Act of 1972 imposed a moratorium on "taking" marine mammals, with a few exceptions that include taking marine mammals incidental to commercial fishing. Under the MMPA, taking may include intentional or unintentional capture or harassment. Amendments to the MMPA adopted by Congress in 1994 established a new regime to govern incidental take in commercial fishing. This programs aims to reduce incidental serious injury and mortality of marine mammals to insignificant levels approaching zero.

One other federal wildlife law deserves special mention: the Migratory Bird Treaty Act. Under this legislation, which implements several international treaties, migratory birds may not be captured or killed unless permitted by regulations adopted by the Secretary of the Interior. Many species of seabird and shorebird fall under the protection of the Migratory Bird Treaty Act.

Finally, several federal laws apply to the conservation and use of coastal habitats and the prevention of water pollution, including the Coastal Zone Management Act, the Clean Water Act, and the Ocean Dumping Act. These laws are administered by other state and federal agencies, including the Environmental Protection Agency and the Army Corps of Engineers.

The principal federal fisheries management law is the Magnuson-Stevens Fishery Conservation and Management Act, which was last amended by the Sustainable Fisheries Act of 1996. Like the MLMA in many ways, the Magnuson Act calls for fishery management plans that meet certain standards, such as avoiding overfishing. In most cases, the federal fishery management process begins with the PFMC, which is composed of state and federal agency representatives as well as commercial and recreational fishermen from California, Oregon, Washington, and Idaho, and a representative of the Indian treaty tribes. Fisheries within the 200-mile EEZ may be managed under fishery management plans developed by the PFMC and approved by the Secretary of Commerce. In the absence of a federal fishery management plan, however, the State can manage fishing conducted by vessels registered in California to the limit of the EEZ.

Transfer of Authority

Of the 19 species proposed for management under the NFMP, 16 are among the 83 species of groundfish included in the Pacific Coast Groundfish Management Plan developed by the PFMC and approved by the U.S. Secretary of Commerce under the Magnusen-Stevens Fishery Conservation and Management Act. Of those 16 nearshore species, the Council actively manages 14 species through such measures as setting OY levels, commercial allocations, and trip limits for the open access fishery. The Council is considering closing access to the open access fishery, which is made up principally of California fishermen. Of the 14 actively managed species, five rockfishes and California scorpionfish are among the nearshore finfish identified in the MLMA. The Council does not actively manage the other two groundfish species in its plan (cabezon and kelp greenling); these two species also are identified in the MLMA.

Eight of the species under the federal fishery management plan are caught only in waters off California and for the most part in state rather than in federal waters (Table 1.2-14). Like other nearshore species, these eight species are not the target of the large-scale fishing fleets that are the principal focus of federal management and scientific attention. Other federally managed nearshore species are caught in Oregon and Washington as well as California, which dominates in the catches of some species and not in others.

For those species actively managed by the Council, the Commission may adopt management measures as long as these measures are consistent with the Council's management or are stricter. For the two species that are not actively managed by the Council, the Commission may adopt whatever management measures it thinks appropriate that are consistent with state law. Likewise, the Commission may adopt management measures for the two species that do not appear in the Council's plan: California sheephead and rock greenling.

These constraints will prevent the State from implementing key features of the NFMP, including restricted access and regional management, regional quotas and allocations, for most species. As a result, the NFMP proposes that the State request that the Council transfer to the State of California management authority for cabezon, kelp greenling, and some or all of the nearshore rockfish in the Pacific Coast Groundfish Management Plan. A transfer of management authority for some or all of these species will require that the Council develop and adopt an amendment to its fishery management plan. This process will require 12-24 months to complete. Any such amendment must meet the objectives of the federal fishery management plan and the standards of the National Environmental Policy Act. During this process, state and federal analyses of available information and Council discussions will determine which species should be transferred to state management.

Actively managing additional species will require additional monitoring and research, increasing the workload of the Department and Commission. However, state management of these species will reduce the complexity of current management under two jurisdictions and will allow for more timely management that reflects regional interests.

In 1982, the Secretary of Commerce approved a fishery management plan for Pacific coast groundfish. The Federal Pacific Coast Groundfish Fishery Management Plan guides the management of fisheries for 83 species, including 55 species of rockfish, 12 species of flatfish, sharks, skates, groundfish, and other species. In 2000, the PFMC divided rockfish into three groups based on the areas in which they are most common: slope, shelf, and nearshore. The 13 species of rockfish and California scorpionfish, which make up the federal nearshore group, occur in California state waters and are included in the state's NFMP. Because the PFMC has primary jurisdiction over these species, the State of California must ensure that its management

of recreational and commercial fisheries for these species does not conflict with federal management.

The federal plan also includes cabezon and kelp greenling, but because the PFMC does not actively manage these species, the State has exercised management over them. Note that the Federal plan does not include the following species which are part of the state's NFMP: California sheephead, monkeyface prickleback, and rock greenling (Table 1.2-16).

Table 1.2-16. Nearshore Fish Stocks within the NFMP.

Common Name	Current Jurisdiction and Selected Management Measures				
	Federally Managed[1]	State Managed	CA Nearshore Commercial Permit Required[2]	Fish Added as "Nearshore Fish Stocks" by Commission (2001)	Sport Size Limit
Cabezon	X[3]		X		X
California scorpionfish	X		X		X
California sheephead		X	X		X
Monkeyface prickleback		X		X	
Greenlings					
Kelp greenling	X[3]		X		X
Rock greenling		X	X		X
Rockfishes					
Black	X			X	
Black-and-yellow	X		X		
Blue	X			X	
Brown	X			X	
Calico	X			X	
China	X		X		
Copper	X			X	
Gopher	X		X		
Grass	X		X		
Kelp	X		X		
Olive	X			X	
Quillback	X			X	
Treefish	X			X	

Note:
1. Species listed under the Pacific Coast Groundfish FMP of the Pacific Fishery Management Council (Council).
2. Species included in the State nearshore permit have minimum size limits that apply to commercial landings.
3. Although listed in the Pacific Coast Groundfish FMP, these two species are not actively managed by the Council.

The Federal groundfish plan establishes an optimum yield for all groundfish species and a procedure for setting limits on landings of individual species. Fishing is managed through permit requirements, gear restrictions, landings limits, and area and seasonal closures. Generally, the PFMC reviews any recent information on the status of groundfish, then determines which species to manage individually and which to manage as groups, and proposes target catch amounts as well as management measures. The PFMC reviews some measures annually and others at regular intervals through the year. After public review and discussion, the Council takes final action, generally in October or November.

The PFMC's decisions are recommendations to the NMFS, acting on behalf of the U.S. Secretary of Commerce. If NMFS finds that PFMC's recommendations meet the standards of the Magnuson-Stevens Act, the agency prepares and issues implementing regulations. These regulations take effect several months later, after further public and governmental review. A chronological list of state and federal regulations can be found in Appendix F.

Recent Management of the Nearshore Finfish Fishery

For decades, the state and federal governments have regulated commercial and recreational fishing for nearshore finfish species. Management measures have included permits, gear restrictions, size limits, time and area closures, quotas, trip limits, and bag limits. In recent years especially, the state and federal governments have had to coordinate management actions affecting most nearshore finfish as competition for nearshore finfish has increased.

As shown by Tables 1.2-17 and 1.2-18, which summarize recent regulatory history for the nearshore fishery, management became much more intensive in the late 1990s, including reductions in recreational bag limits, amounts of fishing gear, open areas and seasons. Allowable catches and open seasons also were reduced for the commercial fleet. This increased management arose from problems in the nearshore fishery itself and from problems in shelf groundfish fisheries, where several populations were declared overfished by the PFMC and allowable catches were reduced to very low levels. Because groundfish from overfished populations mix with other nearshore groundfish and may be captured incidentally to nearshore fishing, measures aimed at reducing overall catches of overfished populations necessarily led to restrictions on nearshore fishing adopted by the PFMC.

Table 1.2-17. Individual species regulations for the recreational nearshore fishery from pre-1991 to 2001.

Nearshore rockfish	Cabezon and California scorpionfish	California sheephead	Rock and kelp greenling
Pre-1991			
Fillet size: Brown-skinned rockfishes filleted at sea, 7" minimum fillet length; blue-, black-, or red-skinned rockfishes, no fillet size limit (1981) Brown-skinned rockfishes filleted at sea, 6.5" minimum fillet length (1986) Fillet size limits lifted for all rockfishes (1990) Daily Bag Limits: Daily rockfish bag limit reduced from 10 to 15 fish, may all be the same species (1970)	Fillet size: Cabezon filleted at sea, 12" minimum fillet length (1982)	No size limits; no specific regulations	No size limits; no specific regulations
1991-1999			
No changes in regulations	No changes in regulations	No changes in regulations	No changes in regulations
2000			
Daily Bag Limit: Reduced from 15 to 10 fish Time/Area Closures: Fishery closed south of Lopez Pt. during January and February; closed north of Lopez Pt. during March and April Gear Restrictions: No spearfishing for rockfish during closures One fishing line with no more than three hooks per fisherman, when rockfish are aboard the vessel Time/Area Closures: Two Rockfish and Lingcod Management Areas (RLMA) established, one north of Lopez Pt., one south. Northern RLMA (to Cape Mendocino) closed March-April, southern RLMA (to Mexico border) closed Jan.-Feb. Management boundary changed from Lopez Pt. to Pt. Conception in May, 2000.	Cabezon may no longer be filleted at sea Minimum Size Limit: Cabezon: 14" minimum total length California scorpionfish filleted at sea, 5" minimum fillet length; 10" total (non-filleted) minimum length	No changes in regulations	Kelp greenling and rock greenling may no longer be filleted at sea Minimum Size Limit: 12" total length for both species

Table 1.2-17 Cont. Individual species regulations for the recreational nearshore fishery from pre-1991 to 2001.

2001			
Gear Restrictions: One fishing line with no more than two hooks per fisherman Time/Area Closures: Northern RLMA closed March-June, southern RLMA closed Jan.-Feb	Minimum Size Limit: Cabezon: 15" minimum total length Time/Area Closures: Cabezon: season open all year, except fish cannot be taken or possessed in waters 10 fm (37 m) or deeper in Cowcod Conservation Areas California scorpionfish: season open all year, except fish cannot be taken or possessed in waters 20 fm (37 m) or deeper in Cowcod Conservation Areas, with further monthly restrictions by area	Daily Bag Limit: 5 fish bag limit established Minimum Size Limit: 12" minimum total length Time/Area Closure: Season open all year except fish cannot be taken or possessed in waters 20 fm (37 m) or greater in depth within Cowcod Conservation Areas	Time/Area Closure: Season open all year, except fish cannot be taken or possessed in waters 20 fm (37 m) or greater in depth within Cowcod Conservation Areas

Note: Monkeyface prickleback was not a state- or federally-managed species during this time frame.

able 1.2-18. State regulations, gear restrictions, and Federal regulations affecting commercial fishing for nearshore fish.

State Regulations	State Gear Restrictions	Federal Regulations
Pre-1991		

Permits: Commercial fishing license Gill/trammel net permit (1980) Gill/trammel net permit moratorium (1985) General trap permit (1984)	Hook & Line: roll lines with more than two hooks banned in some areas (1984)	Permits: None
Species Management: None	Traps: Banned from North Sonoma County to Pigeon Pt. (1984)	Species Management: Nearshore rockfish managed as part of the *Sebastes* complex (1983); limits on landings per trip; overall quotas fro each gear type; coastwide trip limit of 40,000 lb
Time/Area Closures: None	Gill/Trammel Nets: Restricted or banned in many nearshore coastal areas Trawls: Banned within state waters except on halibut trawl grounds in southern California (1953)	Time/Area Closures: None
1991		
No changes from previous year	No changes from previous year	Species Management: Landings of groundfish limited to 25,000 lb/trip, and less than 5,000 lb bocaccio.
1992		
No changes from previous year	Gill/Trammel Nets: Phase out of gill and trammel nets within 3 nmi along mainland from Pt. Arguello south and within 70 fm or 1 nmi around the Channel Islands; ban on the use of gill and trammel nets to take rockfish.	Species Management: Landings of groundfish limited to 50,000 lb per 2 week period; other limits for some species
1993		
No changes from previous year	Hook & Line: Closure within 1 nm on weekends from Humboldt Bay to Pigeon Pt.	No changes from previous year
1994		
Permits: Federal limited entry groundfish permit required Species Management: None	Gill and Trammel Nets: Prohibition on gill and trammel nets within 3 nm along mainland from Pt. Arguello south and within 70fm or 1nm around the Channel Islands	Permits: Fishery divided into two groups: limited entry and open access (for those not in limited entry) Species Management: For the *Sebastes* complex, cumulative monthly limits north and south of Cape Mendocino for limited entry vessels, trip and monthly limits for open access fishery and separate limits for several species

Table 1.2-18 Cont. State regulations, gear restrictions, and Federal regulations affecting commercial fishing for nearshore fish.

1995		
No changes from previous year	No changes from previous year	No changes from previous year

1996		
Permits: Southern California limited entry finfish trap permit Species Management: None	Hook and Line: No more than 150 hooks per vessel; no more than 15 hooks per line within 1 nmi of coast from Humboldt Co. to Mexican border except for two areas in Marin and Humboldt Counties Traps: No traps within 750 ft fo structures from Santa Barbara-Ventura County boundary to Mexico; no more than 50 traps per permittee along the mainland.	Permits: None Species Management: For the *Sebastes* complex, cumulative 2-month limits north and south of Mendocino for limited entry vessels; monthly cumulative limits for open access vessels; and separate limits for several species
1997		
No changes from previous year	No changes from previous year	No changes from previous year.
1998		
No changes from previous year	Traps: Limit of 50 finfish traps in state waters extended from Pt. Arguello north to the CA-OR border; making entire coast, all state waters limited to 50 finfish traps.	No changes from previous year.
1999		
Permits: Nearshore permit developed for 10 nearshore species Species Management: MLMA sets minimum size limits for 10 nearshore species	No changes from previous year	Permits: None Species Management: For the *Sebastes* complex, three-phase cumulative limit periods north and south of Mendocino for limited entry and monthly limit for open access vessels; trip limits for trawlers fishing for pink shrimp, prawns, halibut, and sea cucumber
2000		
No changes from previous year.	No changes from previous year	Species Management: 13 rockfish species (and CA scorpionfish south of Cape Mendocino) were separated from the *Sebastes* complex and placed into the nearshore rockfish group; varying monthly/bi-monthly cumulative limits for limited entry or open access vessels north and south of Cape Mendocino

Table 1.2-18 Cont. State regulations, gear restrictions, and Federal regulations affecting commercial fishing for nearshore fish.

2001

Species Management: Size limits for cabezon and CA sheephead increased; nearshore fish group expanded to include 9 species	Hook and Line: No more than 150 hooks per vessel and no more than 15 hooks per line within 1 nmi of coast for the entire coast of CA, no exceptions	Species Management: None
Time/Area Closures: No cabezon, greenling or CA sheephead may be taken in two Federal Cowcod Conservation Areas in Jan.-Feb., and the RLMAs during 2-mo closures; take of cabezon and greenlings prohibited Thurs.-Sun, inclusive; emergency closures issued for cabezon, CA sheephead, and greenlings at year's end		Time/Area Closures: In northern management area, no nearshore rockfish or CA scorpionfish may be taken in March/April and May/June except in less than 20 fm; in southern management area, no nearshore rockfish or CA scorpionfish may be taken in Jan/Feb except in less than 20 fm. Two Cowcod Conservation Areas established for southern California; fishing restricted to waters less than 20 fm for all species, throughout the year.

Please see Appendix F for details concerning fishing regulations for all species.

Recent Federal Actions Regarding Nearshore Finfish

The PFMC has management responsibility for nearshore rockfishes and California scorpionfish. In managing these species under the Magnuson-Stevens Fishery Conservation and Management Act, the Council develops estimates of MSY and OY, then allocates available catches to commercial and recreational fishing sectors.

The Council's management of these species begins with estimates made by the Groundfish Management Team (GMT). In the 1980s the GMT made the original MSY estimates for California rockfish as a single group, basing these estimates on an analysis of commercial landings from the 1960s and 1970s which indicated that landings for California were at or near MSY levels, except for the Eureka area where historic landings appeared to be about 75% of estimated MSY (PFMC 1982). Recreational landings were quite small compared with trawl landings throughout this period and were assumed to be fairly stable. Little effort was made to accurately estimate total recreational landings and consequently they were not explicitly accounted for in the earlier stock assessments.

In the early 1990s, when an assessment on bocaccio was conducted, recreational landings for bocaccio were estimated and were included in the bocaccio MSY estimate. Bocaccio were removed from the general rockfish MSY estimate, were assigned a quota, and were required to be landed as their own market group. As additional individual rockfish assessments were made, their MSYs were removed from the general rockfish group MSY as well. These assessments were made on the more abundant trawl-caught species.

In 2000, the Council divided the remaining general rockfish category into three separate groups based upon groundfish assemblages as identified from analysis of landings (Rogers and Pikitch 1992): slope, shelf, and nearshore. The overall MSY was divided between the three new groups based upon information from trawl surveys. In 1992, the PFMC established separate management areas north and south of Cape Mendocino, Humboldt County.

When the nearshore group was separated from the other groups, the commercial proportion was calculated by taking the nearshore rockfish OY and subtracting the estimated recreational catch which was based on the most recent year with complete MRFSS landing estimates. In 2000, the first year in which this method was used, the OY for the nearshore rockfish group was 1,499,400 lb (680 mt) (Table 1.2-17). The projected recreational harvest for 2000 was 835,695 lb (379 mt). This left 663,705 lb (301 mt) for the commercial sector in 2000 in the management area south of Cape Mendocino.

The management area north of Cape Mendocino includes Oregon and Washington. California's portion of the nearshore rockfish OY in this region for 2000 was approximately 220,500 lb (100 mt) (Table 1.2-19). The allotments for the recreational and commercial sectors were based upon historical catches from the recent fisheries of the 1980s and early 1990s.

Table 1.2-19. 2000-2001 Optimum yield and allocation for nearshore rockfishes (including California scorpionfish) in metric tons by area.

Area	Year	OY	Recreational allocation	Commercial allocation
Oregon border to Cape Mendocino*	2000	100	70	30
	2001	100	70	30
Cape Mendocino to Mexican border	200	680	379	301
	2001	652	550	102

* The OY and allocation for the area from the Oregon border to Cape Mendocino are estimates.

Recent State Actions Regarding Nearshore Finfish

At the same time that the Legislature was considering the MLMA, it was also considering legislation to bring the nearshore finfish fishery under management. Late in the 1998 legislative session, the two bills were combined and the Nearshore Fisheries Management Act became part of the MLMA.

Under the MLMA, the Commission must adopt an FMP for the nearshore finfish fishery [7072(d)]. In articulating its reasons for adopting these provisions, the Legislature noted increasing fishing pressure, the susceptibility of many species to overfishing, and the lack of information on many species [8585.5]. The Legislature also stated that "whenever feasible and practicable", the State aims to maintain commercial and recreational nearshore fisheries, and the employment that they provide. For these reasons, the Legislature granted authority to the Commission to regulate commercial and recreational nearshore fisheries "to assure the sustainable populations of nearshore stocks." (Figure 1.2-22 and 1.2-23).

The MLMA is quite specific about its scope in the nearshore fishery: fisheries for finfish that are found primarily within one nautical mile of land [FGC §8586(c)]. It then lists specific groups of fish as nearshore fish stocks, including certain species of rockfish, California sheephead, greenlings, cabezon, and scorpionfish. The Commission may also add "other species of finfish found primarily in rocky reef or kelp

habitat in nearshore waters." In 2001, as recommended by the Department, the Commission added nine species of rockfish to the list of nearshore fish.

The MLMA gave the Commission broad authority to adopt regulations regarding nearshore fisheries prior to adoption of an FMP, based on the advice and recommendations of the Department [FGC §8587.1(a)]. Among possible management measures, the Legislature specifically cited requirements for landing information, logbooks, restricted access, limitations on time, area, type and amount of fishing gear, as well as catch quotas and size limits [FGC §8587.1(a)]. In developing and adopting such measures, the Department and Commission are to consult with fishermen and others interested in the fishery [FGC §8587.1(d)].

As a first step in bringing some controls to bear on the nearshore commercial fishery, the Legislature included size limits for nine species caught for sale. The MLMA also authorizes the Commission to change these size limits, set maximum size limits, or set size limits for additional species after at le ast one public hearing [FGC §8586(a); 8588(c) and (d)].

The MLMA requires commercial fishermen to obtain a nearshore fishery permit, which the Commission can suspend or revoke for violations (FGC §8587; 8589.5). Funds generated by the purchase of the $125 permit are to be deposited in the Fish and Game Preservation Fund and used for preparing the NFMP as well as other activities, including research on nearshore fish and their habitat, enforcement, direction of volunteer groups, presentations at conferences and educational institutions, and relevant publications [FGC §8589.7(a)].

Minimum size limits enacted for commercially-caught species, 1999

Black and yellow rockfish	10 inches
Gopher rockfish	10 inches
Kelp rockfish	10 inches
California scorpionfish or sculpin	10 inches
Greenlings (Genus Hexagrammos)	12 inches
China rockfish	12 inches
Grass rockfish	12 inches
California sheephead	12 inches
Cabezon	14 inches

Cabezon, California Sheephead, and Greenlings

Of the 19 NFMP species, cabezon, California sheephead, and greenlings have been managed by the Commission since 1999. In 2000, the Commission adopted several measures for these species.

Because information on these species was poor, the Commission adopted an approach recommended by the Department and based on Restrepo et al. (1998). Under this approach, target catch levels were based upon calculations that included a precautionary reduction to reflect uncertainty about the status of each stock. These calculations began with a proxy for traditional MSY, which was simply the average of catches over the period of 1993-1998. Several sources of data suggested that this was a period during which stocks were relatively stable. One source was surveys of larvae during the 1980s and 1990s conducted by the California Cooperative Fisheries Investigation, which showed no clear evidence that stocks of cabezon or California sheephead were either stable or unstable (Moser, personal communication). Nor did data on recreational and commercial catches show evidence of a decline. (Landings for 1999, the most recent year available at the time, were not used since they showed sharp decreases due probably to implementation of several management measures.)

In order to determine optimum yield for each stock, a precautionary reduction was applied to the proxy for MSY just described. Since the stocks were believed to be neither above their long-term levels of abundance nor overfished, the proxy for MSY was reduced by 50% in setting OY for each stock. If a stock had been thought to be above its long-term level of abundance, the OY would have been set at a level 25% below recent average catches. If a stock had been thought to be overfished, the OY would have been set at a level 75% below recent average catches. (No optimum yield could be set for monkeyface prickleback since data on commercial and recreational catches are very limited.)

The Commission then allocated the optimum yields for each stock between commercial and recreational fishing sectors. The share of OYs allocated to each sector was calculated by combining commercial and recreational landings from 1983-1989 and 1993-1999, then comparing the catches by each sector during these two periods with total catches. The two time periods were chosen because they contained the most recent information available for both the recreational and commercial fisheries and included a time period (1983-1989) when the recreational fishery was prominent and a time period (1993-1999) when the commercial fishery was prominent.

At the same time, the Commission adopted several measures to reduce effective fishing effort, including closing in 2001 the commercial fishery for cabezon and greenlings from Thursday through Sunday along the entire coast.

The Commission also adopted regulations to conform with decisions of the PFMC regarding commercial and recreational fisheries for rockfish under the management jurisdiction of the PFMC. In the Fall of 2001, the Commission adopted emergency regulations to close the commercial fishery for greenlings (September 1), cabezon (September 18) and sheephead (November 8), when landings records indicated that commercial quotas had been reached.